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PHYSICAL CHARACTERS OF INDIANS OF SOUTHERN MEXICO

BY

FREDERICK STARR

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THE PHYSICAL CHARACTERS OF THE INDIANS OF SOUTHERN MEXICO

BY

FREDERICK STARR

ASSOCIATE PROFESSOR OF ANTHROPOLOGY

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COLOR-CHART FOR SOUTH-MEXICAN INDIANS

THE PHYSICAL CHARACTERS OF THE INDIANS OF SOUTHERN MEXICO

Frederick Starr

In the summer of 1895, the casual meeting with a group of Mixe Indians, at Mitla, greatly aroused our interest. Having occasion, six months later, to visit Guatemala, we determined to make the journey from Oaxaca to the city of Guatemala by horse through the Mixe country, in order that we might see more of these interesting, but little known, Indians. Passing, in that journey, through the territories of a dozen different tribes, we were profoundly impressed by the physical differences which the Indians of these tribes presented. Linguistic differences among the Indians of the Isthmian group have long since been admitted. Our earliest field-study in Mexican archæology had already impressed upon us the necessity of differentiating the ancient cultures of Mexico — not one uniform Aztec art presents itself for study, but a number of distinct cultures. In the physical types we now saw a third line of notable differences between Mexican populations and one which appeared to be as deserving of study as either of the others. We believed that the three lines of variation — linguistic, archæological, somatic — should have a common explanation, that all were related, and that all were important in questions of origin, development, and relationship. Accordingly, in the course of that journey, the plan of study of which this paper is the report took form.

Three sorts of investigation have been pursued in order to define the physical types of these tribes. Measurements have been made, photographs have been taken, and plaster busts have been molded. Twenty-three tribes have been examined. It was planned to measure one hundred men and twenty-five women in each tribe. Fourteen measurements were taken upon each subject, the list of measurements being that used by Dr. Franz Boas in his World's Columbian Exposition investigation of the tribes of the United States. If we had made the number indicated, in every tribe, we should have measured a total of 2,875 persons; we actually measured 2,817. One hundred does not make a large series; it is, however, more than are contained in four-fifths of the series accessible to anthropologists, and is a large enough number to give weight to the results secured. Deniker, in *The Races of Man*, quotes series of twenty-five or more. We have taken this number, as a minimum of utility, as the limit for our series of women. Characters of race are better marked in men than in women; women of all tribes are, therefore, more alike than the men; it is more difficult to secure women for measurement than men; when secured, they are less easily measured, on account of stubbornness, stupidity, or fear. These are the reasons why a less number of female than of male subjects was demanded.

Our second method of investigation was by photography. As the 125 subjects passed through our hands for measurement, we selected those which seemed to best present the tribal type for photographing. Usually none were selected until enough subjects had been measured and examined for a clear idea of the type to be present in our mind. Front and side views were made of each person photographed. Approximately six hundred negatives of this sort were taken. A considerable selection from these has already been published, under the title *Indians of Southern Mexico: an Ethnographic Album*. Besides portraits to show the physical types, this work contains many views of villages, buildings, groups, industries, etc., etc. The second and final volume of this album is now ready for the engraver. From among the portrait negatives we have selected sixty of the most characteristic; they represent twenty-three males and seven females, front and side view of each; the twenty-three males included one representative of each tribe. From these negatives a series of life-size platinum-paper prints has been made, of the exact size of life, for museum use. Only fifty sets of these most life-like portraits are to be published. The reduced half-tone engravings with which this paper is illustrated were made from these same negatives.

Five busts were to be made in each tribe. Molds were made directly upon the subject, and a first (pattern) bust was run before we left the town where the investigation was going on. The mold was chipped away and the bust carried with us. After returning home these busts were placed, together with the photographs of the same subjects, in the hands of a competent and conscientious artist, who carefully repaired breakages or imperfections, opened the eyes, and put on the hair. The series of busts absolutely made overran one hundred, but it has been reduced to exactly one hundred by eliminating the less desirable. All the tribes are represented in this series by from two to five subjects. Four sets only of these busts are to be run, and it is expected that they will be located in as many different countries.[1]

The tribes visited live in the states of Mexico, Michoacan, Hidalgo, Puebla, Tlaxcala, Vera Cruz, Oaxaca, Chiapas, and Yucatan. The list, in the order visited, is: 1, Otomis; 2, Tarascans; 3, Tlaxcalans; 4, Aztecs; 5, Mixtecs; 6, Triquis; 7, Zapotecs (Mitla); 8, Mixes; 9, Zapotecs (Tehuantepec); 10, Juaves; 11, Chontals; 12, Cuicatecs; 13, Chinantecs; 14, Chochos; 15, Mazatecs; 16, Tepehuas; 17, Totonacs; 18, Huaxtecs; 19, Mayas; 20, Zoques; 21, Tzotzils; 22, Tzendals, 23, Chols. The location of these tribes is shown upon the accompanying map, their areas being numbered to correspond with those in the list.

The only basis of classification of Mexican Indians has been the linguistic. We have naturally been interested in seeing how far the relationships indicated by language harmonized with the evidence of physical characters. The agreement was hardly so strong as was anticipated. Where results of interest seem to be brought out, we tabu-

[1] Our expeditions were limited to about three months in each of four years: 1898, 1899, 1900, 1901. My helpers were Bedros Tatarian, Charles B. Lang, and Louis Grabic, photographers in the field; Anselmo Pacheco and Ramon Godinez, plaster-workers in the field; Aug. Hubert, modeler; Alvin G. Synnberg, engraver; Manuel Gonzales, field-helper; William L. Koehne, photographer in the studio. To all our thanks are due and hereby given.

late the data regarding linguistically related tribes. It may be well to indicate here the linguistic affinities of our tribes. The latest important work upon the Mexican languages is Dr. Nicholas Leon's *Linguistic Families of Mexico.* According to it, the twenty-three tribes in question are grouped as follows:

Nahuatlan Family: Aztecs, Tlaxcalans, Chontals (?).

Tarascan Family: Tarascans.

Zoquean Family: Zoques, Mixes.

Totonacan Family: Totonacs.

Zapotecan Family: Zapotecs, Cuicatecs, Chochos, Mazatecs, Triquis, Chontals (?), Tehuantepecanos, Mixtecs.

Othomian Family: Otomis.

Mayan Family: Mayas, Huaxtecs, Tzendals, Tzotzils, Chols.

Huavian Family: Huaves.

Chinantecan Family: Chinantecs.

The Tepehuas, whom Orozco y Berra leaves unclassified, are not mentioned by Dr. Leon. They live in several villages in the region where the states of Hidalgo and Vera Cruz come together. Some data relative to them may be found in our *Notes on the Ethnography of Southern Mexico*, pp. 83–6 (reprinted from the *Proceedings Davenport Academy of Sciences*, Vol. VIII, 1900). They present much of interest, and we hope to print further regarding them.

Before presenting the actual results of our study some brief statements of method and generalizations are necessary. Stature, shoulder-height, and height of second finger-tip (the arms hanging at the sides, with the hands open) were taken in rapid succession, to prevent change of position on the part of the subject. When, as happened rarely, the subject was not barefoot, the height of the heel of the shoe was measured and subtracted from all the measures into which it entered. The shoulder-width was the bi-acromial measure. Two face-heights were taken: one was from the line of hair and forehead to the chin, the other from the nasion — or the external point corresponding to it — to the chin.

In South Mexican Indians the hair is usually coarse, straight, and black. This

is true of all tribes. There is, however, a little individual variation in form and color in some tribes; such are mentioned in the descriptions of tribes. The graying of hair, with advancing age, varies considerably with tribes; in some it is rare, in others rather common. Thinning of hair on the top of the head, as age advances, occurs in few tribes. A slight degree of waviness or curliness is sometimes to be seen, but only in one tribe, the Chontals, was it strikingly frequent. All these variations in hair growth or color are interesting, and show racial differences or indicate mixture of bloods. The growth and distribution of the beard is strikingly constant, though occasional tribal differences can be made out. Usually, the growth on the upper cheeks is scanty, scattered, and well forward; on the lower cheeks, none; on the chin, it varies from scanty to medium, but is apt to be localized upon the tip of the chin; the moustache is the heaviest part of the beard, and the first to appear. To economize space we summarize the descriptions of beard growth, in the tribal accounts, after a sort of formula, which applies to upper cheeks, lower cheeks, chin; moustache. The beard, but more particularly the moustache, is often lighter than the head-hair, being brown, or light brown, while the head-hair is black; the beard also, especially the moustache, grays relatively early, and may be gray, or even white, before there is even a sprinkling of gray hairs upon the head.

The eyes of Mexican Indians, like those of our own Indians, are generally of a brown so dark as to be almost black. In the matter of eye color there is little variation. Sometimes a little fading takes place with age, and brown or light brown eyes are more common in old persons than in others. Apparently "oblique" eyes, like those of the Chinese, are frequent in some tribes, but are not universal in any; a less degree of obliquity, which in our records is designated as $\frac{1}{2}$-mongoloid, or $\frac{1}{4}$-mongoloid, occurs quite commonly in some tribes where no true cases of obliquity were noted; in one or two tribes there was observed a tendency to the opposite condition—*i. e.*, a slight obliquity, in which the outer corner of the eye seemed lower than the inner; in several tribes the eyes appear horizontal, and no cases, even of slight obliquity, occurred. In nearly all the tribes the eyes are widely separated, and in none were they notably close together.

We need not comment at length upon the descriptive characters of the nose, lip, and ear. We may merely remark that the ears are of medium size and rather uniform, and that they rarely present those stigmata of degeneracy of which so much study has been made. They are usually well shaped and project but little from the head. The lobe is usually of fair size and well formed, though it is usually more or less attached.

In recording skin color we used the little book prepared by Dr. Boas in 1892. This was withdrawn before his investigation ended, but having no better series we have continued to employ it. Only seven of its colors occur, with any frequency, among our Mexican tribes, and these we have reproduced in the accompanying color-chart, where their original reference numbers are retained. Of course, no Indian ever

presents a single, simple, dead color, such as are here given; these are foundation colors, which are livened up with tints of red or yellow. There is a notable variety of color among these tribes.

The records regarding the number of children borne are below the reality. Records were made for all women who have had children, even for young mothers who had their first infant in their arms. Unmarried women below twenty-five are not recorded; women above twenty-five, but unmarried, are so recorded; married women without children, more than twenty-five years of age, are recorded as barren.

No serious attempt was made to secure information regarding kinds of diseases or their frequency. Such diseases, however, as *pinto*, goitre, cataract, and such results of disease as pock-marking were generally recorded. In regard to *pinto* and goitre the records probably give some idea of their actual frequency.

We may first examine some general tables, wherein measurements or indices from the different tribes are compared, and then we may consider the data regarding each tribe in detail:

TABLE I. STATURE

No. of Cases	Tribe	Mean	Extremes		Range	Little Statures, 1,600	Below Mean, 1,600-1,64	Above Mean, 1,65-1,69	Tall, 1,70
			Max.	Min.					
100	Mazatecs	1,551.3	1,664	1,433	232	86	10	4	0
99	Triquis	1,551.4	1,679	1,351	329	79	17	3	0
100	Mayas	1,552.4	1,675	1,452	224	80	16	4	0
100	Tzendals	1,557.1	1,722	1,403	320	75	18	6	1
100	Chols	1,557.9	1,686	1,436	251	70	25	5	0
100	Tzotzils	1,559.0	1,669	1,445	225	78	19	3	0
100	Tepehuas	1,559.7	1,685	1,470	216	83	14	3	0
100	Mixtecs	1,561.3	1,755	1,421	335	72	25	1	2
100	Chochos	1,562.2	1,684	1,437	248	77	17	6	0
100	Cuicatecs	1,562.3	1,736	1,365	372	77	17	4	2
100	Huaxtecs	1,570.3	1,693	1,413	281	71	19	10	0
100	Totonacs	1,573.4	1,669	1,488	182	73	22	5	0
100	Mixes	1,574.4	1,714	1,553	162	70	21	8	1
100	Chinantecs	1,575.8	1,700	1,430	271	69	23	7	1
100	Otomis	1,579.7	1,718	1,421	298	53	35	11	1
100	Zapotecs (Mitla)	1,586.4	1,772	1,432	341	58	32	6	4
100	Aztecs	1,590.2	1,776	1,465	312	53	29	16	2
80	Chontals	1,598.0	1,768	1,391	378	60	26	12	2
100	Juaves	1,599.6	1,733	1,473	261	55	26	15	4
100	Zoques	1,600.0	1,766	1,442	325	49	36	12	3
100	Tarascans	1,600.4	1,718	1,450	269	49	33	16	2
100	Tlascalans	1,603.4	1,787	1,493	295	43	36	18	3
99	Zapotecs (Teh.)	1,605.0	1,730	1,476	255	48	32	16	4

As shown by the table, nineteen of these tribes are of "little statures"—*i. e.*, below 1,600 mm.; four are "below mean"—*i. e.*, from 1,600 to 1,650 mm. Even the

tallest tribes of all, the Zapotecs of Tehuantepec, are only in the lowest part of this group. No tribe, as a tribe, presents a mean stature "above mean," and the greatest number of "tall" individuals in any tribe is only four. The two shortest tribes, Mazatecs and Triquis, are linguistic relations; they are, however, linguistically related to the Tehuantepecanos, who are the tallest of the whole list. The actual differences in these statures is considerable, 53.7 mm., or something like $2\frac{1}{8}$ inches. The sex difference in stature is notable. Deniker, supporting himself upon Topinard, states the usual sexual difference for mankind to be 12 cm., with a range of 7 cm. to 13 cm. Taking our tribes in the order of the table we find the difference in mean statures for the two sexes to be as follows: 98.6, 126.1, 137.2, 118.7, 144.9, 117.7, 124.3, 93.4, 128.8, 112.3, 97.6, 142.9, 116.0, 177.0, 124.0, 107.0, 128.4, 117.4, 136.6, 125.2, 118.6, 119.8, 95.6. The average of these differences is 122.09, showing that the women in these tribes are really shorter than the men in an unusual degree. The *actual* difference is small, but even small differences in means are significant. It will also be noticed that no case nearly approaches Topinard's minimum difference of 7 cm. (70 mm.), the smallest difference in our list being 93.4; there are also five cases — 137.2, 144.9, 142.9, 177.0, and 136.6 — which surpass his maximum difference of 13 cm. (130 mm.). A final observation of interest in regard to stature is that children, in most of the tribes, are often larger than their parents; this may indicate a recent improvement in food-supply or mode of life.

TABLE II. ARM INDEX

No. of Cases	Tribe	Mean	Extremes		Range	No. of Cases	Tribe	Mean	Extremes		Range
			Max.	Min.					Max.	Min.	
100	Mixes	44.6	48.7	40.6	8.2	100	Tlaxcalans	45.4	50.3	40.8	9.6
100	Mixtecs	44.8	47.7	38.0	9.8	100	Mazatecs	45.5	48.1	41.3	6.9
100	Tzotzils	45.0	49.3	41.2	8.2	100	Juaves	45.5	48.4	42.4	6.1
100	Otomis	45.0	49.6	40.8	8.9	100	Tzendals	45.5	48.7	42.8	6.0
100	Zapotecs (Mitla)	45.1	47.9	40.5	7.5	100	Totonacs	45.5	48.3	43.2	5.2
100	Tarascans	45.1	48.8	39.2	9.7	80	Chontals	45.6	51.1	42.6	8.6
100	Cuicatecs	45.1	47.5	40.2	7.4	100	Aztecs	45.7	52.5	43.3	9.3
99	Triquis	45.2	46.7	40.2	6.6	99	Zapotecs (Teh.)	45.7	49.0	37.9	11.2
100	Chols	45.3	48.4	40.8	7.7	100	Tepehuas	45.8	51.2	42.9	8.4
100	Huaxtecs	45.3	48.4	40.0	8.5	99	Chochos	45.9	50.7	43.4	7.4
100	Chinantecs	45.4	48.8	41.8	7.1	100	Mayas	46.0	48.5	42.7	5.9
100	Zoques	45.4	52.6	43.3	9.4						

The arm index is the proportion, or relation, between the length of the arm (found by subtracting the third from the second of the measures on the list) and the stature, the latter being taken at 100. The difference between the extreme indices 44.6 and 46.0 is not great; the mean of the indices is 45.3, while the median is 45.4.

The mean of indices of five French series given by Topinard is 45.0[2]; white soldiers, measured in the United States at the time of the Civil War, gave 43.4; Iroquois Indians, measured at the same time, gave 45.1; American negroes gave 45.2. A recent examination of West Soudan negroes gave Girard 46.8[3]. Shoshonean tribes give 44.6[4]. These results are not clear; on the whole they indicate that our Mexican Indians have long arms as compared with whites, American negroes, and some United States Indians, but short as compared with Soudanese negroes.

TABLE III. FINGER-REACH INDEX

No. of Cases	Tribe	Mean	Extremes		Range	No. of Cases	Tribe	Mean	Extremes		Range
			Max.	Min.					Max.	Min.	
100	Mixtecs	102.1	108.0	94.4	13.7	99	Tlaxcalans	103.2	110.6	95.8	14.9
100	Zapotecs (Mit.)	102.3	107.4	96.6	10.9	99	Mixes	103.3	108.6	99.9	8.8
100	Cuicatecs	102.4	109.4	94.3	15.2	100	Tzendals	103.4	109.3	97.7	11.7
98	Triquis	102.6	108.0	97.3	10.8	100	Aztecs	103.6	110.2	98.7	11.6
100	Juaves	102.7	107.2	96.3	11.0	100	Huaxtecs	103.7	109.0	99.5	9.6
98	Tzotzils	102.7	106.7	96.7	10.1	99	Zapotecs (Teh.)	103.8	110.2	94.5	15.8
100	Tarascans	102.8	108.4	95.5	13.0	100	Chols	103.8	109.4	98.2	11.3
99	Chinantecs	102.8	109.9	93.6	16.4	100	Mazatecs	104.1	110.1	99.7	10.5
99	Chochos	103.0	111.7	97.2	14.6	100	Totonacs	104.1	110.0	99.4	10.7
100	Otomi	103.0	110.1	97.3	12.9	100	Tepehuas	104.5	109.7	99.8	10.0
80	Chontals	103.1	110.0	98.4	11.7	100	Mayas	105.6	111.7	100.2	11.6
100	Zoques	103.2	108.6	96.6	12.1						

The finger-reach, or the measure along the horizontally outstretched arms from the tip of the middle finger of one hand to the tip of the middle finger of the other, is approximately the same as the stature. The finger-reach index is obtained by comparing this measure with the stature, taken at 100. For series of South Europeans this index ranges from 99.9 to 104.4; among Livonians and Esthonians it is 106.6 and 107.4. In negroes and Iroquois Indians it rises to 108 and more. Among these Mexican tribes it ranges from 102.1 to 105.6, which cannot be considered very large. This index depends upon two elements, the shoulder-width and the arm-length. It is always less than the sum of the shoulder index and twice the arm index. This reduction is due to the fact that, when the arms are extended, a part of their length is lost by the sinking of the head of the humerus into the socket at the shoulder-joint. As the arms are rather long, and the shoulder-width rather great, we should expect a more notable finger-reach.

Comparatively few investigators have calculated the sitting height index, and we have too little material regarding it, at hand, for satisfactory comparison. No doubt

[2] TOPINARD, *Elements gen.*, p. 1,076. These means, calculated with respect to the actual numbers of cases in the series, are: French, 45.1; Mexican Indians, 45.39.

[3] *L'Anthropologie*, Vol. XIII, p. 179.

[4] BOAS, *American Anthropologist*, Vol. I, p. 757.

TABLE IV. HEIGHT-SITTING INDEX

No. of Cases	Tribe	Mean	Extremes		Range	No. of Cases	Tribe	Mean	Extremes		Range
			Max.	Min.					Max.	Min.	
80	Chontals	51.6	55.2	47.3	8.0	100	Mazatecs	52.5	56.1	49.4	6.8
99	Zapotecs (Teh.)	51.6	55.8	48.2	7.7	100	Zoques	52.5	56.2	48.2	8.1
100	Mayas	51.7	54.5	47.9	6.7	100	Cuicatecs	52.6	56.8	48.6	8.3
100	Aztecs	51.8	55.4	47.5	8.0	100	Chochos	52.7	57.2	49.9	7.4
100	Juaves	51.8	53.9	49.6	4.4	100	Tlaxcalans	52.7	55.1	49.4	5.8
100	Otomis	51.8	56.9	47.9	9.1	100	Huaxtecs	52.8	55.9	49.7	6.3
100	Tarascans	52.0	55.4	48.4	7.1	100	Tepehuas	53.0	58.2	50.4	7.9
99	Triquis	52.1	56.1	48.6	7.6	100	Tzotzils	53.2	53.3	49.1	9.3
98	Mixes	52.1	54.8	48.3	6.6	100	Totonacs	53.2	56.2	50.7	5.6
100	Mixtecs	52.2	56.9	49.0	8.0	100	Tzendals	53.3	58.8	50.7	8.2
100	Zapotecs (Mitla)	52.3	55.9	47.8	8.2	100	Chinantecs	53.9	56.6	51.4	5.3
100	Chols	52.4	55.9	48.6	7.4						

the data for such a table exists, but we have not had time for compiling it. Boas (*loc. cit.*), gives the Shoshonean index at 52.2. From Verneau's measurements,[5] we find the index for three tribes of African negroes to be 48.5, 49.2, 48.2. The mean of the indices in our table is 52.4. This is relatively high and shows that these tribes have long trunks. The impression one receives from seeing these people is that they have a great sitting height, a condition to be expected among mountain tribes, where the rarity of the air would seem to necessitate ample lung capacity. We had expected to find the variation in this particular directly related to altitude. In this expectation we were disap-

TABLE V. SHOULDER-WIDTH INDEX

No. of Cases	Tribe	Mean	Extremes		Range	No. of Cases	Tribe	Mean	Extremes		Range
			Max.	Min.					Max.	Min.	
100	Otomis	21.5	24.6	19.4	5.3	100	Cuicatecs	22.4	24.3	20.4	4.0
99	Tlaxcalans	21.8	24.5	19.6	5.0	98	Mixes	22.6	25.8	20.7	5.2
100	Tzendals	21.9	24.2	19.8	4.5	100	Mixtecs	22.6	24.6	20.4	4.3
100	Tarascans	21.9	24.4	19.0	5.5	100	Totonacs	22.7	25.1	19.7	5.5
100	Aztecs	21.9	24.7	19.6	5.2	98	Triquis	22.8	25.3	20.7	4.7
80	Chontals	21.9	23.8	19.2	4.7	100	Huaxtecs	22.8	24.8	20.9	4.0
100	Chols	22.1	25.1	19.7	5.5	100	Tepehuas	22.8	25.1	21.0	4.2
100	Zapotecs (Mitla)	22.1	24.3	19.9	4.5	100	Mazatecs	22.9	25.7	21.3	4.5
100	Tzotzils	22.2	24.3	19.7	4.7	99	Zapotecs (Teh.)	23.0	25.0	20.1	5.0
100	Zoques	22.2	25.4	19.7	5.8	100	Mayas	23.1	25.3	21.0	4.4
100	Juaves	22.3	25.2	20.2	5.1	100	Chochos	23.2	26.1	20.1	6.1
100	Chinantecs	22.4	24.5	20.5	4.1						

[5] "Oulofs, Leybous et Seyreres," *L'Anthropologie*, Vol. VI, pp. 510–28.

pointed. It is true that the Chontals, Tehuantepecanos, Mayas, and Juaves, who live in places near sea level, are short in sitting height, thus seeming to sustain our supposition; but the Huaxtecs (linguistically related to the Mayas), who also live at a slight elevation, have a long trunk. Aztecs and Otomis live on the high plateau, but are near the lowland tribes in sitting-height index.

We were constantly impressed by the apparent fine development of chest in many individuals, and expected to find the shoulder-index large and varying with altitude. The actual figures hardly meet our expectations. Compared with the indices given in Topinard (*loc. cit.*, p. 1082) they are rather large. The measurements taken at the time of our Civil War give white Americans 18.9 and 19.6; Iroquois Indians, 18.8, and American negroes 21.3. All of these fall below our minimum, the Otomis, at 21.5. Boas's Shoshoneans (*loc. cit.*) gave 23.2, which agrees with our maximum for the Chochos. We do not understand how the Chochos have so small a finger-reach index; with the greatest shoulder width index and next to the maximum arm index they ought to be close to the maximum. We suspect some error here, but have sought in vain to locate it.

The cephalic index, unquestionably the most quoted datum in anthropology,

TABLE VI. CEPHALIC INDEX

No. of Cases	Tribe	Mean	Extremes		Range	Dolichocephalic — 69.9	Subdolichocephalic 70.0-74.9	Mesaticephalic 75.0-79.9	Subbrachycephalic 80.0-84.9	Superbrachycephalic 85.0 —
			Max.	Min.						
100	Tzendals	76.8	86.4	68.0	18.5	2	25	59	13	1
100	Tzotzils	76.9	82.7	68.5	14.3	1	19	65	15	0
100	Otomis	77.6	85.1	69.5	15.7	1	18	63	17	1
100	Aztecs	78.9	86.5	69.0	17.6	1	5	56	35	2
100	Tarascans	79.4	88.3	71.3	17.1	0	7	53	32	8
100	Zoques	80.2	89.5	69.4	20.2	1	5	47	35	12
99	Triquis	80.3	92.4	72.6	19.9	0	6	40	37	16
100	Tlaxcalans	80.5	87.2	70.9	16.4	0	2	42	50	6
100	Chochos	80.5	93.6	74.0	19.7	0	3	46	42	9
100	Chols	80.8	95.7	72.4	23.4	0	5	37	48	10
100	Zapotecs (Mitla)	81.0	89.2	73.5	15.8	0	3	33	51	13
99	Zapotecs (Teh.)	81.1	89.5	73.3	16.3	0	4	32	51	12
100	Cuicatecs	81.3	90.1	72.5	17.7	0	4	31	44	21
100	Mixes	81.8	97.5	71.7	25.9	0	7	27	48	18
100	Mixtecs	81.9	96.1	74.5	21.7	0	2	30	46	22
80	Chontals	83.2	93.5	75.6	18.0	0	0	14	43	23
100	Mazatecs	83.2	93.9	74.8	19.2	0	1	21	46	32
100	Chinantecs	83.7	96.4	74.0	22.5	0	2	17	45	36
100	Tepehuas	84.0	92.4	75.2	17.3	0	0	9	52	39
100	Huaxtecs	84.4	95.7	75.7	20.1	0	0	10	45	45
100	Juaves	84.5	93.7	74.3	19.5	0	1	17	36	46
100	Mayas	85.0	94.6	75.2	19.5	0	0	10	42	48
100	Totonacs	85.9	95.8	76.5	19.4	0	0	8	31	61

ranges in these tribes from 76.8 to 85.9. Adopting Topinard's nomenclature, we find no dolichocephalic or sub-dolichocephalic tribes, five mesaticephalic, seventeen sub-brachycephalic, and one supra-brachycephalic. Here we have no lack of material from other parts of the country for comparison, as cephalic indices of North American Indians have been published by many observers. Deniker may profitably be consulted. The Eskimo of the far North and the Botocudo of Brazil are true dolichocephals; the Indians of the United States are mostly sub-dolichocephalic and mesaticephalic; among some of the southern tribes the index rises. Our series, however, probably give the highest indices recorded, and the Mayas and Totonacs no doubt are the most brachycephalic of North American tribes. It will be noticed that there is no

TABLE VII. FACIAL INDEX

No. of Cases	Tribe	Mean	Extremes		Range	No. of Cases	Tribe	Mean	Extremes		Range
			Max.	Min.					Max.	Min.	
100	Aztecs	77.0	86.5	67.5	19.1	100	Mixes	80.8	94.1	70.1	24.1
99	Tlaxcalans	78.0	91.3	68.7	22.7	100	Zapotecs (Mitla)	80.8	89.5	68.3	21.3
100	Tarascans	78.1	87.9	69.3	18.7	99	Triquis	80.8	92.3	66.3	26.1
99	Zapotecs (Teh.)	78.7	88.0	70.5	17.6	100	Otomis	81.0	92.3	71.7	20.7
100	Huaxtecs	79.1	96.7	72.6	24.2	100	Totonacs	81.4	94.7	73.8	21.0
100	Cuicatecs	79.3	96.8	68.9	28.0	99	Juaves	81.5	92.5	74.3	18.3
100	Chochos	79.8	95.7	69.5	26.3	100	Tzendals	81.6	94.5	65.6	29.0
100	Zoques	79.9	92.2	69.5	22.8	100	Mazatecs	81.7	93.0	72.2	20.9
80	Chontals	79.9	93.7	70.4	23.4	100	Tepehuas	82.1	93.5	73.1	20.5
100	Mixtecs	80.0	92.0	70.0	22.1	100	Chinantecs	82.2	94.2	73.3	21.0
100	Chols	80.4	90.7	71.2	19.6	100	Mayas	83.4	95.0	59.6	35.5
100	Tzotzils	80.6	93.4	69.0	24.5						

TABLE VIII. FACIAL INDEX (*b*)

No. of Cases	Tribe	Median	Extremes		Range	No. of Cases	Tribe	Median	Extremes		Range
			Max.	Min.					Max.	Min.	
100	Aztecs	119.5	135.5	98.4	37.2	100	Juaves	124.9	139.4	107.0	32.5
100	Tlaxcalans	120.5	138.0	103.8	34.3	100	Huaxtecs	125.1	147.5	115.5	32.1
100	Tarascans	121.1	135.2	103.1	32.2	100	Tepehuas	125.4	150.8	103.6	47.3
100	Mixes	122.9	138.4	110.5	28.0	100	Chochos	125.5	141.7	113.5	28.3
100	Zoques	123.2	137.5	109.0	28.6	100	Totonacs	125.6	138.8	114.0	24.9
100	Otomis	123.5	138.4	108.3	30.2	100	Chinantecs	125.7	146.2	106.9	39.4
100	Cuicatecs	123.8	138.3	104.0	34.4	100	Mixtecs	125.7	143.5	108.6	35.0
99	Zapotecs (T.)	124.1	137.3	106.8	30.6	100	Mazatecs	125.9	143.2	105.6	37.7
100	Zapotecs (M.)	124.3	139.0	108.6	30.5	100	Tzendals	125.9	144.4	104.9	39.6
100	Tzotzils	124.7	144.4	107.5	37.0	99	Triquis	126.6	143.5	105.7	37.9
80	Chontals	124.7	138.4	108.1	30.4	100	Mayas	130.4	147.1	111.5	35.7
100	Chols	124.9	140.5	108.8	31.8						

agreement in this respect between tribes of the same linguistic family. Mayas and Huaxtecs stand near the upper end, while Tzendals and Tzotzils, their linguistic relatives, are at the lower end.

We shall make no comments regarding the facial indices. The first is found by taking the height, from hair-line to chin, at 100, and computing the proportion of the maximum — bizygomatic — breadth. In the second the height, from the nasion to the chin, is taken at 100 and compared with the same breadth.

TABLE IX. NASAL INDEX

No. of Cases	Tribe	Mean	Extremes		Range	Leptorhinian 70	Mesorhinian 70.0-84.9	Platyrhinian 85.0—
			Max.	Min.				
100	Juaves	76.0	100.0	62.2	37.9	20	71	9
100	Chols	76.4	106.9	58.6	48.4	22	64	14
80	Chontals	77.2	94.0	61.5	32.6	8	61	11
100	Zoques	77.4	95.3	61.1	34.2	16	69	15
100	Mayas	77.5	93.0	63.3	29.8	12	73	15
100	Huaxtecs	78.3	102.5	57.1	45.5	9	73	18
100	Mixes	78.8	102.3	56.4	46.0	12	70	18
100	Totonacs	79.1	97.7	60.7	37.1	7	72	21
100	Chinantecs	79.6	97.8	59.3	38.6	9	68	23
99	Zapotecs (Teh.)	80.0	102.1	64.2	38.0	9	65	25
100	Cuicatecs	80.2	100.0	65.4	34.7	5	70	25
100	Aztecs	80.5	104.8	61.1	43.8	6	72	22
100	Tepehuas	80.7	97.7	63.0	34.8	3	72	25
100	Mazatecs	80.8	102.0	61.4	40.7	6	61	33
100	Tlaxcalans	81.6	109.3	63.3	46.1	9	56	35
100	Zapotecs (Mitla)	81.9	102.3	65.3	37.1	3	64	33
100	Tarascans	82.6	102.4	67.7	34.8	4	60	36
100	Chochos	82.6	102.3	60.0	42.4	4	62	34
100	Mixtecs	83.1	97.9	67.2	30.8	7	65	28
100	Otomis	83.1	104.5	66.0	38.6	4	55	41
100	Tzendals	83.8	102.2	64.1	38.2	4	51	45
100	Tzotzils	84.8	104.5	63.4	41.2	6	43	51
99	Triquis	86.5	107.5	67.2	40.4	3	37	59

The nasal index is of the greatest interest. The actual form of the nose among these tribes varies greatly, as will be evident from study of the tribal descriptions. Many of the tribes have finely aquiline noses, which range from the large, prominent, and relatively thin nose of the Juaves, to the small, flat, and broad nose of the Triquis. None of the tribes is leptorhinian, and only among the Juaves and the Chols do we find as many as one-fifth of the individual cases in that category. On the other hand, only one single mean index places its tribe — the Triquis — among the platyrhinians, and only fifty-nine out of the ninety-nine subjects are so. The rest of the tribes are mesorhinian. Deniker gives the nasal indices of but few American tribes, and those

FIG. 1. OTOMI: HUIXQUILUCAN, STATE OF MEXICO

are all mesorhinian. Boas's Shoshoneans at 83.1 coincide with the Mixtecs, and come between the Chochos and Otomis.

We now turn to the data relative to each tribe: the tribes are taken up in the order in which they were visited, and in which they are numbered upon the sketch-map.

THE OTOMIS

The Otomis are of little stature, only one subject deserving the characterization "tall;" they are mesaticephalic, and have absolutely the longest heads of all the tribes visited; the nasal index, at 83.6, marks them as mesorhinian, although many individual cases are platyrhinian; the shoulder-width index is the least observed.

To the eye there appear to be two well-marked types of males. The first is taller, lighter, broader-nosed than the other, and has eyes that are widely separated and often oblique. The broad nose may be wide and flat at the tip, or it may be what we have designated "beaked" — with the ridge extending down beyond the alæ as a central, hooked, body, from which the alæ open out rather broadly. While the nose is wide and low, it is often aquiline; at the root it is flat-convex or squarish. The beard on the upper cheeks is scanty, lacking altogether on the lower cheeks, is scanty on the chin, and medium on the upper lip. As is frequently the case among Mexican

FIG. 2. OTOMI WOMAN: HUIXQUILUCAN, STATE OF MEXICO

TABLE X. OTOMIS

	Men (100)			Women (28		
	Mean	Max.	Min.	Mean	Max.	Min.
Stature	1,579.7	1,718	1,421	1,455.7	1,528	1,324
Height of shoulder	1,315.2	1,438	1,165	1,202.3	1,278	1,079
Tip of second finger	602.2	681	527	550.8	612	486
Finger-reach	1,629.0	1,776	1,419	1,481.4	1,559	1,351
Height, sitting	819.7	896	752	774.1	827	698
Width of shoulders	338.3	380	303	322.7	355	296
Length of head	189.7	203	180	181.7	190	173
Breadth of head	147.2	160	136	144.6	152	132
Height of face (*a*)	176.1	196	154	164.2	178	141
Height of face (*b*)	114.1	124	104	105.8	115	90
Breadth of face	140.7	150	130	135.1	141	127
Height of nose	50.0	58	43	43.6	50	38
Breadth of nose	41.6	48	34	38.1	46	32
Length of ear	64.1	76	53	60.1	67	54
Arm index	45.0	49.6	40.8	44.7	47.8	41.9
Finger-reach index	103.0	110.1	97.3	101.7	105.3	96.7
Sitting-height index	51.8	56.9	47.9	53.1	56.9	50.9
Shoulder index	21.5	24.6	19.4	22.1	23.7	20.2
Cephalic index	77.6	85.1	69.5	79.0	86.2	69.7
Facial index (*a*)	81.0	92.3	71.7	78.3	86.4	68.1
Facial index (*b*)	123.5	138.1	108.3	127.6	139.8	119.1
Nasal index	83.1	104.5	66.0	88.2	117.9	73.9

FIG. 3. TARASCAN (YOUNG TYPE): SANTA FE DE LA LAGUNA, STATE OF MICHOACAN

tribes, the beard among the Otomis shows greater variation in form or texture, in color, and in turning gray, than the hair of the head. Both, however, show much variation: in more than 30 per cent. of the subjects the beard varies from the normal straight and black condition; in something over 20 per cent. of subjects the hair of the head varies. The head is long. The skin is a light yellow or whitish, curiously ruddy, and blotched with red, purple, or blue. The face is flat and broad.— The other type is little, dark brown (16), and has a much more agreeable facial expression; the eyes are less widely-spaced, and the eyebrows often meet; the root of the nose is flat, depressed, and often squarish; the nose is narrower and better-shaped than in the previous type. The individual represented in the cut belongs to this little type.

Women are more uniform, and, on the whole, are darker than the men. They more resemble the second than the first male type. They are little; from yellow-brown to dark brown (16); the face is flat, the nose broad and flat, the cheek-bones wide, and the heads absolutely long. The head-hair grows low upon the forehead, and the forehead itself is frequently grown with a fine black down; the eyebrows often meet. The heads of the women, and of the little men, are peculiarly high — as well as long — though this appearance is increased in men by the mode of cutting the hair. (The hair on the upper third of the head is left uncut while the rest is trimmed.) Eighteen women who had been mothers had had one hundred and twenty-one children.

FIG. 4. TARASCAN GIRL: SANTA FE DE LA LAGUNA, STATE OF MICHOACAN

THE TARASCANS

The Tarascans are among the taller of these tribes, less than half, forty-nine, being of little stature; only two subjects, however, were tall. Though taller than their neighbors, the Otomis, their heads are shorter. Among the men we may distinguish a well-defined youthful, and an equally definite older, type. In the youthful type, which holds until thirty or thirty-five years, and which *may* persist through life, the skin is of a fine, dark brown (16); the face is large; the nose is broad, with round nostrils, which open to the sides, and which are separated from the face level, behind, by a well-defined ridge of flesh; the eyes are often mongoloid; the lips are thick and protrude somewhat; there is little of the fine, black, forehead down, even in children. In the older type the face lengthens; the nose becomes narrower; the nostrils face downward, and the ridge of flesh behind them disappears; the eyes straighten.

The hair is straight and black, but two cases showing any degree of graying; one-fourth of the cases show a slight tendency to waviness. The eyes are generally well separated. The beard distribution is remarkably uniform. It is scanty and of moderate length upon the upper cheeks; there is none or little on the lower cheeks, and when there is any it is well forward; on the tip of the chin there is a medium or scanty short growth; the moustache is scanty or medium, and of moderate length.

The ear is well-shaped, and stands off somewhat from the head; the border of the helix is thin and, above, is rolled inward, below is flat; the lobe is rather large, attached, and round-triangular.

Twenty-one women have had one hundred and fifty-two children, of whom one hundred and one have died. Families are quite frequently large; the largest included in this enumeration consisted of thirteen children. Women are frequently fat. Goitre occurs to a considerable extent. In Uruapan only those living in the ward of San Juan are affected. We examined six cases there, of whom three were males and three females. Three of these cases were deaf and two were imbecile; one female examined, who was sixty years of age and unmarried, has two brothers — whom we did not see — of whom one is a deaf-mute, the other is goitrous. At Capácuaro, a quite purely Tarascan town, the disease is common. It seemed as if every man we met was more or less affected; some of the cases were notably developed.

TABLE XI. TARASCAN

	Men (100)			Women (95)		
	Mean	Max.	Min.	Mean	Max.	Min.
Stature	1,600.4	1,718	1,450	1,481.8	1,602	1,381
Height of shoulder	1,327.6	1,429	1,203	1,223.9	1,326	1,110
Tip of second finger	603.9	660	494	566.2	642	495
Finger-reach	1,645.8	1,794	1,525	1,519.9	1,664	1,431
Height, sitting	833.5	903	739	790.8	860	727
Width of shoulders	351.7	392	319	324.3	351	294
Length of head	184.3	199	169	179.5	190	170
Breadth of head	146.5	158	138	142.2	149	134
Height of face (*a*	178.2	199	158	169.6	181	154
Height of face (*b*	115.0	128	102	107.8	117	99
Breadth of face	139.1	151	128	133.7	143	128
Height of nose	48.0	59	41	43.4	48	39
Breadth of nose	40.1	46	33	37.0	43	32
Length of ear	63.3	74	53	61.4	71	55
Arm index	45.1	48.8	39.2	44.3	46.0	42.3
Finger-reach index	102.8	108.4	95.5	102.2	108.2	92.1
Sitting-height index	52.0	55.4	48.4	53.3	55.8	50.6
Shoulder index	21.9	24.4	19.0	21.8	23.6	20.0
Cephalic index	79.4	88.3	71.3	79.2	84.3	75.7
Facial index (*a*)	78.1	87.9	69.3	78.9	88.5	72.3
Facial index (*b*)	121.1	135.2	103.1	124.1	132.0	116.2
Nasal index	82.6	102.4	67.7	85.1	95.3	73.0

THE TLAXCALANS

In stature the Tlaxcalans are only surpassed by the Zapotecs of Tehuantepec and twenty-one out of the hundred are above the mean stature of mankind. The head is well shaped although, frequently, there is a curious bulging of the forehead above the glabella. In skull-form they are intermediate, forty-two subjects being mesaticephalic and fifty sub-brachycephalic. The skin color is a fine dark-brown (16), shading at times toward yellow-brown or red-brown. The hair is black and straight; few

FIG. 5. TLAXCALAN: TLAXCALA, STATE OF TLAXCALA

subjects—only six—were distinctly gray and only one of these was white; seventeen showed a slight tendency to waviness or curliness; middle-aged men rather frequently showed thinning of hair on top of head and some degree of temporal baldness. The beard formula is none (or scanty), none or scanty and well forward on the cheeks, medium (or scanty) on tip and central line of chin; moustache rather full and often of fair length. The beard on the chin is first to turn gray, then that on the lower cheeks; these may be quite gray before the moustache begins to turn; the beard as a whole may be gray or even white, before the hair of the head is sprinkled with gray. While the hair itself is usually straight, the beard hair is often inclined to become curly. The eyes are dark brown, but moderately spaced, and *rarely* mongoloid; there is unusually frequency of lighter brown eyes, 16 per cent. The line of union between the nose and the forehead is rather high and from narrow to medium; the root of the nose is little depressed; the nose itself is aquiline, frequently; the beaked nose, already described, is rather common. The lips are thin or of medium thickness and are nearly vertical. The ears rarely project to a notable degree from the head, and are, often, quite close to the head; they are round; the upper border of the helix is thin and rolled in; the lower part of the border is flat and of medium thickness; the lobe is of fair size, round, and attached.

Women present little that calls for comment. Their eyes, like those of the men,

FIG. 6. AZTEC: CUAUHTLANTZINCO, STATE OF PUEBLA

TABLE XII. TLAXCALANS

	Men (100)			Women (25)		
	Mean	Max.	Min.	Mean	Max.	Min.
Stature	1,603.4	1,787	1,493	1,483.6	1,571	1,413
Height of shoulder	1,329.5	1,503	1,223	1,225.2	1,276	1,168
Tip of second finger	600.7	696	519	563.9	610	527
Finger-reach	1,656.0	1,977	1,538	1,507.0	1,612	1,400
Height, sitting	845.5	910	774	789.5	839	722
Width of shoulders	350.6	400	309	323.5	353	299
Length of head	185.2	210	175	179.3	187	172
Breadth of head	149.1	163	137	143.5	153	135
Height of face (*a*)	179.7	205	161	168.4	184	151
Height of face (*b*)	116.3	129	105	108.5	118	102
Breadth of face	140.1	154	125	130.5	139	123
Height of nose	49.4	60	43	43.8	51	39
Breadth of nose	40.1	47	34	35.6	39	32
Length of ear	65.1	75	56	59.8	68	54
Arm index	45.4	50.3	40.8	44.5	47.9	42.5
Finger-reach index	103.2	110.6	95.8	101.6	108.4	94.6
Sitting-height index	52.7	55.1	49.4	53.2	55.0	50.8
Shoulder index	21.8	24.5	19.6	21.7	23.8	20.3
Cephalic index	80.5	87.2	70.9	79.9	84.5	75.4
Facial index (*a*)	78.0	91.3	68.7	77.2	83.7	68.4
Facial index (*b*)	120.5	138.0	103.8	120.3	131.0	107.8
Nasal index	81.6	109.3	63.3	81.3	90.4	68.6

FIG. 7. AZTEC WOMAN: CUAUHTLANTZINCO, STATE OF PUEBLA

are rather often brown, and not almost black; this occurred in 20 per cent. of cases. Nineteen mothers had borne one hundred and sixteen children, of whom just half had died. The largest family in the series was of eighteen children. Two women were barren.

THE AZTECS

The Aztecs examined were, unfortunately, from close by Tlaxcala. Cuauhtlantzinco is a "made town," of post-conquest origin. Its population was drawn from Cholula and Tlaxcala. There should then be little difference between our Tlaxcalan and Aztec series; real differences would point to a true Aztec type, lying on the other side of the observation from the Tlaxcalan.

	Stature	Arm	Finger-reach	Sitting-height	Shoulder	Cephalic	Facial	(*b*)	Nasal
Aztec	1590.2	45.7	103.6	51.8	21.9	80.5	77.	119.5	80.5
Tlaxcala	1603.4	45.4	103.2	52.7	21.8	78.9	78.	120.5	81.6

The significant variations are in stature, sitting-height index, cephalic index, and nasal index. The Tlaxcalans are taller, more dolichocephalic, and broader-nosed than the Cholultec-Tlaxcalans of Cuauhtlantzinco. Presumably a purer Aztec type would be shorter, more brachycephalic, and narrower-nosed.

The same remarks concerning hair—color, form, and distribution—already made regarding Tlaxcalans apply to the Aztecs. Fifteen per cent. of eyes among men were

lighter than normal, 8 per cent. among women. One case of strabismus and one of cataract occurred among the hundred subjects. The line of union between the nose and forehead was high and of medium breadth: the tip of the nose was rather thick. The lips were often thick and somewhat projecting. Ears rarely project notably, but the lower part of the ear often stands off somewhat. The helix border is thin and rolled-in above, thick and flat below; the lobe is rather large, attached, and round—tending to square or triangular.

To twenty-four mothers one hundred and forty children were born, of whom only sixty had survived; one woman was barren. Three women out of the twenty-five were stout.

TABLE XIII. AZTECS

	Men (100)			Women (25)		
	Mean	Max.	Min.	Mean	Max.	Min.
Stature	1,590.2	1,776	1,465	1,461.8	1,527	1,339
Height of shoulder	1,318.8	1,498	1,209	1,211.8	1,271	1,118
Tip of second finger	591.3	696	508	558.7	601	495
Fingerreach	1,648.9	1,797	1,485	1,503.2	1,587	1,363
Height sitting	825.8	887	754	762.2	824	704
Width of shoulders	350.0	390	304	325.1	357	299
Length of head	185.7	200	174	179.1	185	171
Breadth of head	146.5	158	134	142.8	156	133
Height of face (*a*)	179.5	200	162	171.0	187	159
Height of face (*b*)	115.6	133	101	107.0	119	98
Breadth of face	138.1	151	124	131.9	145	123
Height of nose	50.0	60	41	45.4	54	39
Breadth of nose	40.0	47	33	36.4	43	34
Length of ear	63.9	77	54	61.0	67	55
Arm index	45.7	52.5	43.3	44.6	47.4	41.0
Fingerreach index	103.5	110.2	98.7	102.4	107.1	90.1
Sitting-height index	51.8	55.4	47.5	52.1	55.0	50.2
Shoulder index	21.9	24.7	19.6	22.1	24.1	20.1
Cephalic index	78.9	86.5	69.0	79.4	87.7	72.2
Facial index (*a*)	77.0	86.5	67.5	76.7	83.6	70.0
Facial index (*b*)	119.5	135.5	98.4	122.5	134.2	110.0
Nasal index	80.5	104.8	61.1	80.0	95.5	68.0

THE MIXTECS

The Mixtecs are of little stature, mesati- to sub-brachycephalic and mesorhinian. The hair is straight, black, and abundant. Five cases were gray; thirteen were sprinkled with gray; one was brown; nine showed a tendency to waviness and six to curliness. The forehead is high, but the apparent height is frequently due, in part, to forward baldness. The beard was gray in twelve cases, sprinkled with gray in eleven, and relatively light-colored in three. The distribution of the beard was: none to scanty, none or scanty to medium, medium; medium to full. The beard on the chin was often confined to the very tip. There were sixteen subjects with brown eyes; obliquity of the eyes, in any degree, was observed but six times. The line of union

FIG. 8. MIXTEC: YODOCONO, STATE OF OAXACA

TABLE XIV. MIXTECS

	Men (100)			Women (25)		
	Mean	Max.	Min.	Mean	Max.	Min.
Stature	1,561.3	1,755	1,421	1,467.9	1,580	1,367
Height of shoulder	1,291.0	1,345	1,179	1,206.6	1,301	1,131
Tip of second finger	586.8	658	526	543.5	594	493
Finger-reach	1,595.2	1,790	1,342	1,493.5	1,588	1,403
Height, sitting	815.7	895	732	774.2	853	716
Width of shoulders	353.7	388	318	329.5	359	298
Length of head	182.5	196	156	179.5	190	171
Breadth of head	149.4	162	135	143.9	155	135
Height of face (*a*)	178.4	200	157	164.0	180	139
Height of face (*b*)	113.5	127	101	105.3	118	93
Breadth of face	142.5	154	130	135.7	142	128
Height of nose	49.9	59	41	44.9	50	40
Breadth of nose	40.6	48	35	37.1	43	34
Length of ear	63.9	75	57	61.3	75	56
Arm index	44.8	47.7	38.0	45.1	47.7	43.0
Finger-reach index	102.1	108.0	94.4	101.7	106.2	97.2
Sitting-height index	52.2	56.9	49.0	52.7	58.9	49.5
Shoulder index	22.6	24.6	20.4	22.4	23.6	20.7
Cephalic index	81.9	96.1	74.5	80.2	85.9	75.5
Facial index (*a*)	80.0	92.0	70.0	82.8	97.1	73.3
Facial index (*b*)	125.7	143.5	108.6	129.3	148.3	114.4
Nasal index	83.1	97.9	67.2	82.7	97.6	65.9

FIG. 9. TRIQUI: CHICAHUAXTLA, STATE OF OAXACA

between the nose and the forehead varies from high to medium and is of medium width; while the nose is frequently aquiline, the tip is wide and flat. The lips are moderately thick and project somewhat. The ears are round and close to the head, though they tend to stand off considerably below. The helix border is thin and slightly turned-in above, rather thick and flat below; the lobe is large, round, and attached. The face is often absolutely large and is broad and heavy below. The color of the skin is dark brown — from 13 to 16.

In women there is, quite often, a growth of fine, black down upon the forehead. Twenty-two women had had one hundred and twenty-two children, of whom seventy-seven still lived. Two women were unmarried and one was barren.

THE TRIQUIS

The Triquis present one of the best marked types of Southern Mexico. They are next to the shortest among the tribes examined, are mesati- to sub-brachycephalic, and have the highest nasal index observed — 86.5. They are well-built and finely muscled. The hair is black and straight, only fifteen persons showing graying or light color and but five showing any tendency to waviness or curling. The beard appears late, men of thirty often having almost none. On the upper cheeks there is none or scanty, on

FIG. 10. TRIQUI WOMAN: CHICAHUAXTLA, STATE OF OAXACA

TABLE XV. TRIQUIS

	Men (90)			Women (25)		
	Mean	Max.	Min.	Mean	Max.	Min.
Stature	1,551.4	1,679	1,351	1,425.3	1,557	1,316
Height of shoulder	1,281.2	1,429	1,097	1,172.3	1,281	1,083
Tip of second finger	578.6	656	466	535.6	675	451
Finger reach	1,592.4	1,728	1,434	1,464.0	1,597	1,325
Height, sitting	802.1	881	691	756.4	834	692
Width of shoulders	335.7	403	312	319.9	341	291
Length of head	183.6	198	163	179.4	199	164
Breadth of head	147.5	167	135	142.0	155	135
Height of face (*a*)	172.5	197	154	162.9	179	150
Height of face (*b*)	110.1	129	97	104.1	112	94
Breadth of face	140.6	151	128	132.5	144	125
Height of nose	47.7	58	40	42.8	49	36
Breadth of nose	41.1	49	33	38.3	44	34
Length of ear	62.0	73	54	58.2	64	47
Arm index	45.2	46.7	40.2	44.6	47.8	37.9
Finger reach index	102.6	108.0	97.3	101.8	106.5	88.7
Sitting height index	52.1	56.1	48.6	53.0	55.4	48.9
Shoulder index	22.8	25.3	20.7	22.4	24.5	20.4
Cephalic index	80.3	92.4	72.6	79.2	89.6	71.3
Facial index (*a*)	80.8	92.3	66.3	81.4	88.1	73.1
Facial index (*b*)	126.6	143.5	105.7	127.5	137.2	116.9
Nasal index	86.5	107.5	67.2	89.7	110.2	76.6

FIG. 11. ZAPOTEC: TLACOLULA, STATE OF OAXACA

the lower cheeks none in seventy-one cases, on the chin it is scanty to medium; the moustache is of medium growth. The eyes are dark brown and are truly mongoloid in one-half the subjects. The nose varies little; it is finely aquiline, but is low and, at the tip, flat and wide; the line of junction with the forehead is rather high. The lips are frequently thick, but do not project much, as the thickness is largely vertical. The forehead is quite high, and in women is likely to be covered with fine black down. The legs of men are apt to be notably hairy. The skin is dark brown (16), and is smooth and soft. The oblique eyes and some degree of projection of the lips are more marked in young than in older subjects. The round ears are quite closely set to the head; the border of the helix above is thin and rolled-in or flat, below it is flat and thick to thin; the lobe is relatively large, attached, and round—varying to square or triangular.

In women the nose is less frequently aquiline and is often short and fat at the tip. The lips are thick and, often, project. Prognathism, in part due to large front teeth, appears rather commonly among them. Twenty-two mothers had borne one hundred and eleven children, of whom sixty-five have died. One woman was barren.

The hair rarely turns gray or grows thin before the age of fifty years. Old persons appear fairly preserved. This is the more surprising as the tribe is terribly

FIG. 12. ZAPOTEC WOMAN: MITLA, STATE OF OAXAÇA

addicted to drunkenness. We incline to attribute this abuse of intoxicants to climatic conditions. Cold and heavy fogs sweep up the mountains from the coast daily and their chill penetrates to the very bone. Wherever, in the high mountains, fogs are abundant and precipitation occurs almost constantly, we find the same conditions. The Mixes and the Chinantecs, in their magnificent, forest-clad, abundantly-watered mountains, are almost equally addicted to drink.

THE ZAPOTECS

The population of Mitla is ordinarily considered Mixtec-Zapotec, rather than truly Zapotec. If the Zapotecs of Tehuantepec are typical, these of Mitla certainly occupy an intermediate position between them and the Mixtecs. The tpye is not well-defined. The average stature, 1586.4, places them in the category of "little statures;" the finger-reach is rather low; the cephalic index is sub-brachycephalic; the nose is mesorhinian. The hair is black, but it varies in form toward wavy or curly in one case out of four. There is no beard on the upper cheeks in 60 per cent., none on the lower in 69 per cent., of cases; there is a medium beard growth on the tip of the chin; the moustache is heavier at the ends, being short and scanty at the middle. After forty years the beard growth is heavier, but merely emphasizes this distribution.

In twenty subjects the eyes were brown instead of dark brown. Oblique eyes are uncommon; only six cases presented any degree of obliquity. The nose is large, but is seldom aquiline; rather, the bridge is long and straight or slightly sinuous; the line of junction with the forehead is from high to medium. Lips are of moderate thickness, and project but little. Ears are round, and vary much in their relation to the head; the upper border of the helix is thin and rolled in, the lower border is flat and varies from thick to thin; the lobe is large, attached, and round to triangular. Cheek-bones are, not rarely, prominent, and broad lower faces are common. One case of cataract was observed.

The male subject illustrated on the preceding page (Fig. 11, p. 26) was exhibited at the eleventh session of the Congress of Americanists as a type, reproducing, as it does, in many ways that shown in ancient works of art. He is hardly a good example of the type, as we have defined it, as his aquiline nose and rather heavy beard are exceptional.

The women of the tribe present no special features for detailed comment. Twenty mothers had borne one hundred and twenty-five children, of whom fifty-eight were still living. Two women were unmarried, and one was childless. These Zapotec women present a notable frankness and gayety, as compared with the women in the preceding tribes, and are only equaled (and surpassed) in this regard by their sisters in the Tehuantepec district.

TABLE XVI. ZAPOTECS

	Men (100)			Women (25)		
	Mean	Max.	Min.	Mean	Max.	Min.
Stature	1,586.4	1,772	1,432	1,474.9	1,570	1,403
Height of shoulder	1,310.2	1,494	1,195	1,212.0	1,329	1,131
Tip of second finger	593.0	705	512	557.0	628	505
Finger-reach	1,623.8	1,788	1,451	1,505.0	1,661	1,380
Height, sitting	830.5	910	740	782.8	853	722
Width of shoulders	352.6	392	318	330.2	358	296
Length of head	183.5	200	171	175.8	182	166
Breadth of head	148.7	167	138	144.3	158	134
Height of face (*a*)	177.6	202	157	169.7	188	146
Height of face (*b*	113.5	127	100	106.8	123	100
Breadth of face	141.0	155	125	134.8	144	127
Height of nose	49.3	57	41	45.3	50	41
Breadth of nose	40.3	50	33	36.8	45	30
Length of ear	62.5	74	49	58.5	70	53
Arm index	45.1	47.9	40.5	44.3	48.3	39.1
Finger-reach index	102.3	107.4	96.6	101.9	108.1	96.9
Sitting-height index	52.3	55.9	47.8	53.0	55.8	50.6
Shoulder index	22.1	24.3	19.9	22.3	24.3	20.5
Cephalic index	81.0	89.2	73.5	82.0	89.1	75.7
Facial index (*a*)	80.8	89.5	68.3	79.6	91.0	71.2
Facial index (*b*)	124.3	139.0	108.6	126.5	134.3	107.3
Nasal index	81.9	102.3	65.3	81.2	95.2	66.6

FIG. 13. MIXE: COATLAN, STATE OF OAXACA

THE MIXES

The Mixes are of little stature, and are exceptionally strongly built; their muscles are well developed, and their men are famous as carriers; the chest development is good. The arms are the shortest observed (44.6), but their finger-reach (103.3) is fairly high. The hair is black and straight: there were fifteen cases of gray, or gray-sprinkled hair, and sixteen with a tendency to wavy and curly. Twelve subjects had really gray, and nine gray-sprinkled beards; there were eight cases of black-brown, brown, or red-brown beards. The beard on the upper cheeks is scanty, on the lower cheeks there is none or it is scanty, on the chin it is medium or scanty; the moustache is medium. The moustache appears first, the chin beard next; when — as is common in older subjects — there is a medium, or even full, growth on the upper and lower cheeks, there is a clear space between. The eyes are dark brown, with 8 per cent. of lighter occurrences; they are rarely oblique — in about 5 per cent.; they are widely separated. The line of union of the nose and forehead is high and of medium width; the nose is fat, flat, and broad, with nostrils somewhat transversely spread. The mouth is large and lips are thick and projecting; the mouth is rarely kept closed. Prognathism is common. The lines from the sides of the nose to the ends of the lips are deeply creased. Ears are often irregular and are usually close to the head; the

upper helix border is rolled in and thin, while the lower border is flat and thick; the lobe is large, attached, and round. The face is low and is broad across the cheeks. The skin is dark brown, (13) being most common and (16) next.

The female type was noted as "wide face above; lower face wide; nose broad and flat; nostrils nearly circular and close to the face." This description applies as well to the youthful male type. To twenty-three mothers, one hundred and sixty children were born of whom eighty-four still lived; the largest family contained sixteen children.

The occurrence of erythrism at Ixcuintepec is famous through the Mixe country. In one family are several red-heads; we saw two males of this family. The hair was a rich and handsome blackish red—in the shade, in a dull light, it would pass for black; in good light the red was evident. Among our hundred males four had cataract (one, an old man, had both eyes affected). One woman was goitrous. Goitre is not infrequent in this region of fine mountain brooks. At Camotlan, with a population of 143 persons, there were six cases of goitre—four females and two males; there were three deaf-mutes, who were *not* children of goitrous parents; and there was one case of congenital deformation, with no legs and with deformed arms and hands. Our measurements, taken at Ajutla, Juquila, Ixcuintepec, and Coatlan, no doubt represent the type adequately, but we regret that the work was not done at Ocotepec, where the people appear to be exceptionally pure and the type finely marked.

TABLE XVII. MIXES

	Men (100)			Women (25)		
	Mean	Max.	Min.	Mean	Max.	Min.
Stature	1,574.4	1,714	1,553	1,458.4	1,648	1,326
Height of shoulder	1,302.2	1,423	1,195	1,199.2	1,346	1,073
Tip of second finger	583.8	663	520	538.2	617	454
Finger-reach	1,628.1	1,809	1,456	1,478.9	1,712	1,385
Sitting height	822.4	905	752	774.0	855	681
Width of shoulders	357.4	422	309	322.9	365	288
Length of head	184.5	200	165	178.3	188	165
Breadth of head	150.7	166	140	142.9	153	132
Height of face (*a*)	177.0	200	154	167.0	184	152
Height of face (*b*)	116.8	131	103	105.6	117	93
Breadth of face	143.5	155	132	133.3	143	118
Height of nose	49.7	62	41	44.4	49	37
Breadth of nose	39.0	48	31	34.9	40	30
Ear length	62.2	79	50	60.6	73	49
Arm index	44.6	48.7	40.6	44.7	46.6	42.4
Finger-reach index	103.3	108.6	99.9	101.3	105.9	97.1
Sitting-height index	52.1	54.8	48.3	53.0	55.6	49.8
Shoulder index	22.6	25.8	20.7	22.1	24.4	20.6
Cephalic index	81.8	97.5	71.7	80.1	87.2	74.1
Facial index (*a*)	80.8	94.1	70.1	79.9	88.1	71.8
Facial index (*b*)	122.9	138.4	110.5	126.4	144.0	111.9
Nasal index	78.8	102.3	56.4	79.0	100.0	66.6

FIG. 11. TEHUANTEPEC ZAPOTEC; SAN BLAS, STATE OF OAXACA

THE ZAPOTECS OF TEHUANTEPEC

The Zapotecs of Tehuantepec probably present the finest Zapotec type, although they probably have some admixture of Spanish blood. They are the tallest tribe visited, having a mean stature of 1605; in cephalic index they are close to the Mixtec-Zapotecs of Mitla; they are mesorhinian. The hair was gray, or turning to gray, in seventeen cases, and was brown in three; the usual formula — "black, straight" — fails in 43 per cent. of cases. The distribution of beard is much as usual: less than half had any beard on the upper cheeks, three-fourths had none on the lower cheeks, forty-six had a medium, and thirty-six a scanty, growth on the chin, while three-fourths had a medium moustache growth; 37 per cent. of the subjects have light or gray beard. Eyes are usually dark brown, but there were seventeen cases of brown, light brown, or gray; few are oblique in any degree. The line of union between the nose and forehead is from high to medium and rather narrow; though the nose is long and high, it is often flat and thick at the end. The lips vary from medium to thick and project somewhat. The ears are, rather frequently, irregular, and project from the head; the edge of the helix is thin and rolled in above, thick (or thin) and flat below; the lobe is large, attached, and variable in form. A certain narrow, large-featured, hatchet face is rather common, and is represented in the cut. The skin color

TABLE XVIII. ZAPOTECS (TEHUANTEPECANOS)

	Men (99)			Women (25)		
	Mean	Max.	Min.	Mean	Max.	Min.
Stature	1,605.0	1,730	1,476	1,509.4	1,630	1,403
Height of shoulder	1,325.2	1,448	1,220	1,245.8	1,349	1,157
Tip of second finger	589.7	683	520	569.5	630	530
Finger-reach	1,666.9	1,826	1,454	1,540.1	1,729	1,415
Height, sitting	830.0	905	765	793.4	852	754
Width of shoulders	361.2	395	314	333.0	362	295
Length of head	185.3	199	171	176.6	191	158
Breadth of head	150.2	163	139	145.6	155	133
Height of face (*a*)	181.1	201	160	171.8	191	149
Height of face (*b*)	114.8	132	99	107.4	116	99
Breadth of face	142.4	155	129	136.0	150	125
Height of nose	50.2	58	42	44.7	50	40
Breadth of nose	40.1	49	34	36.2	42	29
Length of ear	63.7	77	52	59.3	64	52
Arm index	45.7	49.0	37.9	44.7	47.6	42.0
Finger-reach index	103.8	110.2	94.5	101.9	107.8	95.6
Sitting-height index	51.6	55.8	48.2	52.6	55.2	49.2
Shoulder index	23.0	25.0	20.1	22.0	23.8	19.2
Cephalic index	81.1	89.5	73.3	82.5	92.4	76.3
Facial index (*a*)	78.7	88.0	70.5	79.2	87.9	73.5
Facial index (*b*)	124.1	137.3	106.8	126.7	140.2	118.9
Nasal index	80.0	102.1	64.2	81.0	93.3	63.0

varies but the commonest tint is (16) and the next is (13), so it may be described as dark brown.

Women give the impression of being larger and better built than the men. This is not actually the case, but the maximum stature of the women is greater than the mean stature of the men. This is true of only four other tribes in the list—Mixes, Mixtecs, Triquis, and Tarascans. In enterprise and vivacity the women are distinctly superior. For personal beauty the Tehuantepec women are famous: all travelers emphasize the fact and some assert that they are the handsomest women in the world. Much of this favorable impression is due to their fine forms, their free and graceful movement, and their straightforward and fearless manner. Women of middle age tend toward stoutness and some cases of real obesity occur.

We have already stated that the Mitla Zapotecs are intermediate between the Tehuantepecanos and the Mixtecs. The accompanying table shows this:

	Stature	Arm	Finger-reach	Sitting	Shoulder	Cephalic	Facial	(*b*)	Nasal
Mixtecs	1561.3	44.8	102.1	52.2	22.6	81.9	80.0	125.7	83.1
Zapotecs (M.)	1586.4	45.1	102.3	52.3	22.1	81.0	80.8	124.3	81.9
Zapotecs (T.)	1605.0	45.7	103.8	55.8	23.0	81.1	78.7	124.1	80.0

In only three of these nine details do they occupy any but the intermediate place, and in those three the difference between the two Zapotec types is small. Facts, then, bear out the common idea that the people of Mitla are a Mixtec-Zapotec mixture.

THE JUAVES

These sea-side, lagoon-frequenting Indians present a well-marked type. Their average stature falls just short of "below mean:" the cephalic index is just short of supra-brachycephaly; their nasal index, while the least observed, is still mesorhinian. The hair is straight and black; there were nine cases of gray hair, and twenty-eight that were more or less wavy or curly. The beard presents greater variation: there were fifteen cases which were somewhat gray and thirty-two which were brown or black-brown. There was total lack of beard on the upper cheeks in sixty-nine cases, and straggling hairs in twenty-two; there was no beard on the lower cheeks; on the chin the growth varied from medium to scanty, but was confined to the tip and a vertical median line. Out of nine cases that present a medium growth on the upper cheeks, eight were gray or brown; in the few cases where there was a scanty growth on the lower cheeks, all were gray or brown. These facts raise the suspicion of mixture of bloods in cases of notable beard growth. The eyes are dark brown; in the eight cases where brown eyes were observed, the hair or beard was gray, brown, or black-brown, straight-wavy, or straight-curly; the eyes show no tendency to obliquity. The nose is enormous, prominent and aquiline; this is true even in women and boys; among the latter, however, it is lower and somewhat flat. The line at the junction of nose and forehead is high and from narrow to medium; the bridge is often narrow; the tip is rarely thick and is, sometimes, even hooked. The mouth is large, the lips thick,

TABLE XIX. JUAVES

	Men (100)			Women (25)		
	Mean	Max.	Min.	Mean	Max.	Min.
Stature	1,599.6	1,733	1,473	1,463.0	1,537	1,375
Height of shoulder	1,322.9	1,451	1,217	1,203.0	1,281	1,103
Tip of second finger	592.8	678	535	539.2	599	478
Finger-reach	1,644.1	1,775	1,473	1,505.5	1,595	1,383
Sitting height	830.9	897	770	782.6	821	739
Width of shoulders	354.8	393	314	326.2	351	296
Length of head	181.3	199	162	172.3	183	155
Breadth of head	153.1	171	140	148.2	164	133
Height of face (*a*)	177.1	200	162	167.5	182	149
Height of face (*b*)	116.2	129	104	106.8	116	94
Breadth of face	145.0	160	134	137.4	150	121
Height of nose	50.3	58	42	44.7	51	38
Breadth of nose	38.1	45	32	35.7	41	30
Ear length	61.3	77	55	58.3	64	53
Arm index	45.5	48.4	42.4	45.0	47.9	42.3
Finger-reach index	102.7	107.2	96.3	102.9	106.8	98.8
Sitting height index	51.8	53.9	49.6	53.4	56.0	51.2
Shoulder index	22.3	25.2	20.2	22.2	24.1	20.1
Cephalic index	84.5	93.7	74.3	86.0	95.9	76.2
Facial index (*a*)	81.5	92.5	74.3	83.1	91.0	75.2
Facial index (*b*)	121.9	139.4	107.0	130.3	144.9	115.6
Nasal index	76.0	100.0	62.2	80.2	93.0	65.2

FIG. 15. JUAVE: SAN MATEO DEL MAR, STATE OF OAXACA

and the upper lip often projects. The cheek-bones are high; the lower face varies and may be broad or narrow. Ears vary little and are not large; the upper part of the ear frequently stands well off from the head—the lower part rarely does; the upper part of the border of the helix folds over, sometimes closely and flattened; the lower part is flat and thin, though the very edge may be thickened and slightly raised; the lobe is large, attached, and triangular. The skin color is commonest at (16), then at (13).

The women show rather more variation than the men; they are lighter in color, there being twice as many at (13) as there are at (16). As regards fecundity, twenty-four women had borne one hundred and fifty-seven children, of whom more than half (eighty-six) were dead. Two women out of twenty-five had cataract of the eyes.

Especial interest attaches to this tribe of Indians. Their manner of life is peculiar; they have a language whose affinity with other Mexican languages is unknown, and they are believed to have come from somewhere farther south—from Central America or South America.

Francisco Belmar has recently published a study of the language of the Juave tribe, and Nicolas Leòn has prepared a summary of what has heretofore been written about them.

FIG. 16. JUAVE WOMAN: SAN MATEO DEL MAR, STATE OF OAXACA

THE CHONTALS

A first glance gives the impression that the Chontals are sadly mixed. Their frequently curly hair, light skin, and light eyes suggest blood mixture. As their chief town lies upon a much traveled high-road, the possibility of such a mixture is admitted. But if it has taken place the work has been thorough, and the resulting type is quite as uniform as many of those in southern Mexico. Usually the *range* in character and indices is considered indicative of purity or mixture. In our nine general tables the range in stature is the only *maximum* shown by the Chontals; in four indices the range is considerable, though not a maximum; in four the range is less than that of one-half of the tribes, and in two of these (one of them the nasal index) it is relatively small. The type, then, is *not* a bad one. If there is notable mixture, probably negro blood, as well as white, is present. The Chontals, with a stature of 1,598.0 mm., are near near the taller end of our tribes; they are sub-brachycephalic; the nasal index is low. The hair is black and straight, but in thirty-five cases out of eighty it showed variation in form and in sixteen out of eighty cases showed variation in color. Ten cases were distinctly curly, while three were brown or dark brown. The beard was gray, or sprinkled with gray, in thirty subjects; it was curly in several. Many subjects had no beard on the upper cheeks, but thirty-one

FIG. 17. CHONTAL: TEQUIXISTLAN, STATE OF OAXACA

TABLE XX. CHONTALS

	Men (80)			Women (25)		
	Mean	Max.	Min.	Mean	Max.	Min.
Stature	1,598.0	1,768	1,391	1,480.6	1,563	1,383
Height of shoulder	1,325.0	1,488	1,141	1,218.6	1,305	1,130
Tip of second finger	595.2	678	540	548.8	612	483
Finger-reach	1,648.6	1,821	1,415	1,503.6	1,609	1,410
Height, sitting	825.4	905	728	788.0	857	749
Width of shoulders	351.7	386	308	326.4	347	298
Length of head	180.3	192	162	176.1	185	177
Breadth of head	149.9	160	139	144.5	153	132
Height of face (*a*)	177.6	200	145	170.0	188	155
Height of face (*b*)	113.7	129	102	107.7	115	100
Breadth of face	141.7	151	126	137.5	148	124
Height of nose	50.5	56	45	46.0	53	40
Breadth of nose	39.0	47	32	36.5	44	30
Length of ear	62.4	73	55	61.0	77	52
Arm index	45.6	51.1	42.6	45.1	48.4	42.7
Finger-reach index	103.1	110.0	98.4	101.5	106.5	95.7
Sitting-height index	51.6	55.2	47.3	53.1	55.1	50.7
Shoulder index	21.9	23.8	19.2	22.0	24.1	20.1
Cephalic index	83.2	93.5	75.6	82.0	87.7	76.6
Facial index (*a*)	79.9	93.7	70.4	81.0	87.5	72.0
Facial index (*b*)	124.7	138.4	108.1	127.6	136.2	114.8
Nasal index	77.2	94.0	61.5	79.4	91.6	63.2

FIG. 18. CHONTAL WOMAN; TEQUIXISTLAN, STATE OF OAXACA

subjects showed a scanty to medium growth; only a third had any at all on the lower cheeks; more than half had a medium growth upon the chin; five-eighths had a medium and almost all the others a full moustache. This remarkable predominance of the moustache over the rest of the beard appears real, and not the result of shaving. The eyes are dark brown; only seven varied (one of these was blue-gray); they are widely spaced and are horizontal. The nose is large and rather long, often somewhat convex along the ridge; the root is high and narrow, and often presents a broad plateau, pinched up into a narrow ridge just where it joins the forehead. The lips are thin to medium; the upper lip is vertical or slightly projecting. The ear is round, stands off from the head, and is thin and rather open; the upper border of the helix is thin and rolled inward, the lower border is thick to thin and flat; the lobe varies in size and attachment, but is usually round. The color of the skin varies somewhat in individuals, but the commoner shades are represented by (13), (23), and (16) in our color-plate.

Women fairly present the same type. More than one-half of them gave skin color at (13). Their lips are more frequently thick and they are sometimes prognathic. Two of the women whom we examined had never borne children; but twenty-two mothers had given birth to one hundred and thirteen children, of whom sixty-seven had died.

FIG. 19. CUICATEC: PAPALO, STATE OF OAXACA

THE CUICATECS

The Cuicatecs present less uniformity of type than any other tribe examined. After having examined the whole series of subjects there was no satisfactory type-picture in mind. They are of little stature, sub-brachycephalic (with many mesaticephalic individuals), and mesorhinian. The hair is black and straight: twelve subjects were somewhat gray, one was brown, and one blackish red; some degree of waviness or curliness was observed in fourteen cases. The common beard formula was: none (or scanty), none, scanty to medium; medium to full; where beard occurred on the cheeks it was well forward. The eyes are dark-brown, widely spaced, and horizontal. Two nose forms were rather common; these, notwithstanding their differences, might be combined in one person: (*a*) long, not aquiline, sinuous, with the bridge often curiously broadened in the upper third of its length; (*b*) crest or ridge concave, wide and fat at bottom, with round, quite widely separated, nostrils. With the latter type of nose there was usually associated a fat and broad lower face. Not infrequently, at the root, the nose is pinched up into a narrow ridge upon a wider plateau, which widely separates the eyes. The lips are thick and often project. The ears are rather close to the head; the upper border of the helix is rolled in and thin; the lower border is thicker and flat; the lobe is large, attached, and round (triangular).

The color of the skin is most frequently at (23); after this come (13) and (23–13).

Of all Mexican Indians visited by us these were the least agreeable, the least intelligent, and the most stubborn. We had hoped this bad impression was peculiar to ourselves, but find that they bear much the same reputation among others who have come into contact with them.

In four cases there was some degree of baldness. One cataract was noticed. One subject presented a curious disease affecting the finger nails; these were enormous, thick, and smooth. The subject attributed the condition to his working constantly in cold water. Two other cases were observed, but they were not developed in anything like the same degree.

Eight women were more or less gray, and two presented some curliness of hair; four had brown eyes. The long sinuous nose above described is rather common among them. Twenty-four mothers had borne one hundred and fourteen children, of whom seventy still lived; one woman was unmarried.

TABLE XXI. CUICATECS

	Men (100)			Women (25)		
	Mean	Max.	Min.	Mean	Max.	Min.
Stature	1,562.3	1,736	1,365	1,450.0	1,524	1,313
Height of shoulder	1,286.4	1,478	1,111	1,189.9	1,255	1,070
Tip of second finger	578.5	690	500	544.5	589	468
Finger-reach	1,601.7	1,815	1,400	1,465.1	1,578	1,362
Height sitting	823.3	883	729	776.8	829	693
Width of shoulders	351.6	391	311	323.6	352	297
Length of head	181.5	204	170	173.0	182	165
Breadth of head	147.6	162	137	141.0	154	134
Height of face (*a*)	175.8	200	156	162.8	183	142
Height of face (*b*)	112.5	125	103	105.6	118	96
Breadth of face	139.1	155	125	131.0	141	123
Height of nose	48.3	57	41	44.0	51	36
Breadth of nose	38.6	45	31	34.6	40	30
Length of ear	60.1	71	51	57.8	68	52
Arm index	45.1	47.5	40.2	44.4	47.4	42.5
Finger-reach index	102.4	109.4	94.3	101.0	104.3	96.5
Sitting-height index	52.6	56.8	48.6	53.5	56.8	50.9
Shoulder index	22.4	24.3	20.4	22.2	23.8	21.3
Cephalic index	81.3	90.1	72.5	81.6	92.7	75.8
Facial index (*a*)	79.3	96.8	68.9	80.6	89.7	69.3
Facial index (*b*)	123.8	138.3	104.0	124.0	132.0	111.9
Nasal index	80.2	100.0	65.4	78.9	100.0	66.6

THE CHINANTECS

These mountain Indians present a fine type, with two well-defined sub-types—youthful and mature. They are of little stature sub-brachycephalic, and mesorhinian. The youthful type has a broad, flat nose, with a straight (or occasionally concave) ridge and a flat tip; the eyes are widely spaced and often oblique; the mouth is large, with thick lips, of which the upper projects notably beyond the lower;

FIG. 20. CHINANTEC: SAN JUAN ZAUTLA, STATE OF OAXACA

TABLE XXII. CHINANTECS

	Men (100)			Women (25)		
	Mean	Max.	Min.	Mean	Max.	Min.
Stature	1,575.8	1,700	1,430	1,398.8	1,503	1,308
Height of shoulder	1,297.4	1,428	1,155	1,143.4	1,263	1,076
Tip of second finger	582.2	657	498	505.9	583	466
Finger-reach	1,608.1	1,793	1,432	1,409.5	1,540	1,345
Height, sitting	847.8	935	782	763.3	831	710
Width of shoulders	353.4	390	323	322.2	351	285
Length of head	181.4	203	165	176.6	186	165
Breadth of head	151.9	168	140	146.0	155	130
Height of face (*a*)	176.8	202	157	167.4	175	144
Height of face (*b*)	115.6	132	101	104.8	114	96
Breadth of face	145.0	163	135	135.9	142	128
Height of nose	50.4	61	42	45.2	52	40
Breadth of nose	39.9	50	34	37.4	45	33
Length of ear	62.9	73	56	60.7	71	52
Arm index	45.4	48.8	41.8	45.5	47.8	43.4
Finger-reach index	102.8	109.9	93.6	103.1	107.5	99.5
Sitting-height index	53.9	56.6	51.4	54.5	57.4	52.2
Shoulder index	22.4	24.5	20.5	22.9	24.6	21.4
Cephalic index	83.7	96.4	74.0	82.7	90.3	75.8
Facial index (*a*)	82.2	94.2	73.3	81.2	88.8	75.7
Facial index (*b*)	125.7	146.2	106.9	129.8	139.6	120.1
Nasal index	79.6	97.8	59.3	82.9	97.5	71.4

the face is flat, and wide at the cheek-bones; the skin is dark (16). With age this changes to the mature type. The nose becomes finely aquiline and moderately wide, or narrow, at the root; the upper lip becomes less projecting; the skin lightens up to a certain age, after which it again darkens, becoming finally fixed at (23–4).

The hair is straight and black; in three cases it was gray, in nine somewhat sprinkled with gray, and in two somewhat brown; seven cases were slightly wavy or curly. The beard was gray, or gray sprinkled, in fourteen, and brownish in seven, cases. The commonest beard formula was: medium (or none), none, scanty; medium. The scanty chin beard is almost confined to the point and a middle vertical line. Several subjects, particularly among the youthful type, showed a fine, black, downy growth upon the forehead. Eyes are dark brown, often widely separated, and rather frequently (there were nineteen cases) oblique. Eyebrows are frequently continuous. While the nose in the mature type is finely aquiline, it is not large and is often low. The lips are moderately thick and somewhat projecting. The ear is round and close to the head; the border of the upper part of the helix is rolled inward and thin; that of the lower part is flat and thick (thin); the lobe is large, attached and round.

Fifty years appears to be a considerable age, and those claiming to be so old usually were wrinkled and had prominent lower, and shrunken upper, jaws. Several were pock-marked; two had cataract. The fourth and fifth toes are frequently of the same length; this peculiarity is also common among Triquis and Mixtecs. At San Juan Zautla, where there are but eighty *contribuentes* (there were formerly one hundred and nine), imbecility is common and we saw one deaf-mute. At San Pedro Zoochiapa conditions appear better.

Women present no noteworthy features. In our series, two women were barren; the other twenty-three had borne one hundred and nine children, of whom thirty-six had died.

THE CHOCHOS

The Chochos are of little stature, sub-brachycephalic, and mesorhinian. Their arms are moderately long and their shoulder-width surpasses that of all the other tribes. The face tends to become low and round, with the maximum breadth, at the cheek-bones, larger than the maximum cranial breadth. The hair is black and straight; there were twelve cases gray, nine sprinkled with gray, and one brown; a tendency to curling, especially on top of the head, is noticeable; thinning of the hair on top of the head is rather common. The beard commonly follows the formula: medium (or none), none (or medium), medium; medium. Fully one-half the subjects conformed to this formula, showing that the tribe is, relatively, heavily bearded. The beard was gray in seventeen, gray sprinkled in thirteen, and brown in seven, cases. The eyes are dark brown and well separated; in thirty-eight subjects they were oblique. The nose is broad, with a fat, flattened tip; it tends, however, to become longer, and even aquiline, with age. The lips are thick and projecting. Ears are round and close to

FIG. 21. CHOCHO: COIXTLAHUACA, STATE OF OAXACA

TABLE XXIII. CHOCHOS

	Men (100)			Women (25)		
	Mean	Max.	Min.	Mean	Max.	Min.
Stature	1,562.2	1,684	1,437	1,433.4	1,524	1,375
Height of shoulder	1,285.5	1,368	1,172	1,169.2	1,249	1,116
Tip of second finger	567.0	640	490	527.1	600	450
Finger-reach	1,609.0	1,810	1,434	1,467.9	1,546	1,375
Height, sitting	824.3	895	757	768.2	828	720
Width of shoulders	364.2	403	312	329.9	359	288
Length of head	187.6	200	171	178.5	188	170
Breadth of head	151.0	165	138	147.0	151	136
Height of face (*a*)	179.9	200	159	168.8	188	155
Height of face (*b*)	114.9	126	103	106.5	118	98
Breadth of face	144.0	158	134	136.0	149	129
Height of nose	49.3	61	40	43.5	50	37
Breadth of nose	40.6	49	33	36.4	43	32
Length of ear	62.5	77	54	59.0	66	52
Arm index	45.9	50.7	43.4	44.7	47.9	41.2
Finger-reach index	103.0	111.7	97.2	102.6	107.3	96.9
Sitting-height index	52.7	57.2	49.9	53.5	55.9	50.5
Shoulder index	23.2	26.1	20.1	22.9	24.7	20.9
Cephalic index	80.5	93.6	74.0	82.4	87.0	75.1
Facial index (*a*)	79.8	95.7	69.5	80.7	94.3	71.8
Facial index (*b*)	125.5	141.7	113.5	128.0	141.9	116.1
Nasal index	82.6	102.3	60.0	84.0	97.6	68.0

the head; the helix border is rolled in and thick above and flat below; the lobe is large, slightly attached, and round. The lower face is often heavy and projecting. The color of the skin is quite constant at (23). Overgrown examples of the youthful type occur; big, babyish fellows. A coarse, light type is also found.

The Chochos gave us the impression of being extremely cowardly.

Women present the same tendency to obliquity of the eyes, broadness of nose, and thickness and projection of lips that the men do; they present the same uniformity in color, at the same shade. Twenty mothers in our series had borne ninety-one children, of whom forty-six had died; one woman was unmarried.

THE MAZATECS

The Mazatecs, with a stature of 1551.3 mm., are the shortest of the tribes examined. They are sub-brachycephalic and mesorhinian. The head is frequently flattened behind, giving great apparent height. The hair is black and straight; only three cases were gray and five sprinkled with gray; thirteen subjects presented slight degrees of waviness or curliness; the hair was occasionally thin on top of the head. The beard was gray in four, sprinkled with gray in six, and brownish in seven, cases. The beard growth on the upper cheeks was medium, on the lower cheeks none, on the chin medium to scanty; the moustache was medium. The beard appears late, and subjects from twenty-six to twenty-eight years of age often have none at all, or a scanty growth upon the chin point and the upper lip. The face, at the cheek-bones, is wide, often as wide as the maximum cranial width. The nose is generally aquiline, though neither large nor prominent; the line of junction of the nose and forehead is high to medium and of medium width; the tip of the nose is often broad and flat. The eyes are dark brown and widely separated; in twenty-eight subjects they were more or less oblique. The lips range from medium to thick and there is some prognathism. The lower jaw is frequently wide and heavy-angled. The ear is round, and stands well off from the head; the border of the upper part of the helix is thin and rolled in, while that of the lower part is thick (-thin) and flat; the lobe is large, attached, and round-triangular. The skin color is most frequently at (23); next in frequency is (13–23); seventy-five of the cases fall within these two shades.

Women present much the same type, but are more frequently prognathic. They tend to stoutness, and middle-aged women are sometimes fat. In our series were three barren women and one unmarried woman; seventeen mothers had borne ninety children, of whom forty-seven still survived.

Three or four cases were pock-marked. About the same number of persons were affected by purple *pinto*. The disease of *pinto* is little significant at Huauhtla, but we were told that at Chichotla, which is at a considerable lower altitude, "almost everyone" had it. In disposition Mazatec men are timid; women are less so and far more frank.

FIG. 22. MAZATEC: HUAUHTLA, STATE OF OAXACA

TABLE XXIV. MAZATECS

	Men (100)			Women (25)		
	Mean	Max.	Min.	Mean	Max.	Min.
Stature	1,551.3	1,664	1,433	1,452.7	1,532	1,360
Height of shoulder	1,274.6	1,394	1,174	1,187.7	1,265	1,095
Tip of second finger	565.3	636	509	548.6	603	495
Finger-reach	1,617.6	1,760	1,505	1,472.5	1,584	1,395
Height, sitting	815.2	888	754	772.2	811	727
Width of shoulders	360.6	401	328	333.5	369	294
Length of head	181.5	195	164	177.4	187	164
Breadth of head	150.9	165	141	147.0	159	140
Height of face (*a*)	174.0	194	154	170.6	190	156
Height of face (*b*)	112.9	127	103	107.4	117	100
Breadth of face	142.1	154	130	136.0	140	130
Height of nose	48.5	57	41	44.2	52	39
Breadth of nose	39.1	50	30	36.8	42	30
Length of ear	62.1	72	53	60.3	69	54
Arm index	45.5	48.1	41.3	43.9	46.2	41.4
Finger-reach index	104.1	110.1	99.7	101.3	105.9	96.8
Sitting-height index	52.5	56.1	49.4	53.1	55.3	50.2
Shoulder index	22.9	25.7	21.3	22.9	25.7	20.3
Cephalic index	83.2	93.9	74.8	82.9	90.2	76.5
Facial index (*a*)	81.7	93.0	72.2	80.1	88.7	72.4
Facial index (*b*)	125.9	143.2	105.6	126.6	136.6	114.5
Nasal index	80.8	102.0	61.4	83.4	95.0	73.1

FIG. 23. TEPEHUA: HUEHUETLA, STATE OF HIDALGO

THE TEPEHUAS

The Tepehuas are of little stature, sub-brachycephalic, and mesorhinian. Their arms are long and their finger-reach index nears the upper limit in our list. The hair is straight and black; only four cases of the least sprinkling of gray were observed. There were twenty cases where the beard was more or less grayed. The formula of beard growth is: medium, none, scanty to medium; medium. The eyes are moderately separated, dark brown and, in a dozen cases only, slightly oblique. The nose is usually aquiline, but is neither large nor high; the line of union between nose and forehead is of medium height and breadth; the ridge of the nose is occasionally sinuous; the tip is thick. The upper lip is often notably thick and projecting. The ear is variable in respect of standing off from the head; the border of the upper section of the helix is rolled in and thick, that of the lower section flat and thick; the lobe is large, mostly attached, and round. The color is constant at (24) in fifty per cent. of cases.

Women present much the same type. Twenty-one women had borne one hundred and nine children, of whom fifty-two had died; one woman was childless. Almost everyone of this tribe had lost one or more incisor teeth; this loss was generally attributed to the eating of *panela*, brown cake sugar, of which they are inordinately fond.

TABLE XXV. TEPEHUAS

	Men (100)			Women (25)		
	Mean	Max.	Min.	Mean	Max.	Min.
Stature	1,559.7	1,685	1,470	1,435.4	1,536	1,362
Height of shoulder	1,284.5	1,405	1,204	1,182.8	1,287	1,129
Tip of second finger	568.5	622	500	537.5	590	483
Finger-reach	1,632.0	1,790	1,512	1,478.4	1,594	1,379
Height, sitting	828.5	890	760	768.2	820	728
Width of shoulders	357.0	403	313	328.8	354	297
Length of head	180.0	194	168	174.8	184	167
Breadth of head	151.2	164	136	148.0	159	139
Height of face (*a*)	173.4	194	153	166.3	180	138
Height of face (*b*)	113.7	137	97	103.8	114	94
Breadth of face	142.1	151	126	138.2	148	128
Height of nose	47.7	55	32	42.8	49	36
Breadth of nose	38.6	47	29	34.9	39	31
Length of ear	61.7	74	52	59.0	66	51
Arm index	45.8	51.2	42.9	44.6	47.5	42.1
Finger-reach index	104.5	109.7	99.8	102.9	107.9	98.0
Sitting-height index	53.0	58.2	50.4	53.6	58.1	51.1
Shoulder index	22.8	25.1	21.0	22.8	24.0	20.9
Cephalic index	84.0	92.4	75.2	84.6	93.5	77.4
Facial index (*a*)	82.1	93.5	73.1	82.3	91.9	74.1
Facial index (*b*)	125.4	150.8	103.6	133.3	155.7	123.3
Nasal index	80.7	97.7	63.0	81.5	97.5	68.3

THE TOTONACS

The Totonacs are of little stature, supra-brachycephalic, having the largest index observed among our tribes (85.9), and mesorhinian. The arm, finger-reach, and sitting-height indices are all high. The Totonacs live in close contact with the Tepehuas, and we expected close resemblance between the two tribes. They present, however, some striking points of dissimilarity. The hair is straight and black; only one case of gray and six of gray-sprinkling were observed. The head remains black even after the beard is white, and a gray head signifies real age. The hair on the top of the head rarely thins. The beard was gray in eleven cases, and brown or brown-black in five; frequently the tip of beard hair was brown or reddish-brown when the rest of the same hair was black. The beard distribution was after the formula — medium, none, medium; medium. The eyes are widely spaced, dark brown, and, in ten cases only, oblique. The nose, often aquiline, is usually low; the line of union with the forehead ranges from high to medium, and has medium breadth; the narrow ridge often extends as a beak beyond the alæ. The lips are thick; the chin is often retreating. These two features combined render a notable prognathism common. The ear is round and close to the head; the border of the upper part of the helix is thin (-thick) and rolled in; that of the lower part is flat and thick; the lobe is large, attached, and round. The cheek-bones are broad and high; the face tapers downward. Broad lower faces and heavy jaw angles, so common among the Tepehuas, are unusual

FIG. 24. TOTONAC: PANTEPEC, STATE OF PUEBLA

TABLE XXVI. TOTONACS

	Men (100)			Women (25)		
	Mean	Max.	Min.	Mean	Max.	Min.
Stature	1,573.4	1,669	1,488	1,430.5	1,533	1,332
Height of shoulder	1,300.2	1,386	1,214	1,173.8	1,265	1,084
Tip of second finger	581.0	619	530	526.5	608	461
Finger-reach	1,638.2	1,789	1,528	1,475.9	1,578	1,367
Height, sitting	837.6	918	789	759.4	817	717
Width of shoulders	359.1	401	317	328.2	357	295
Length of head	179.2	109	164	173.5	181	165
Breadth of head	153.8	165	140	149.8	161	138
Height of face (*a*)	178.8	206	153	168.8	180	158
Height of face (*b*)	115.9	129	103	106.6	118	97
Breadth of face	145.3	158	135	138.1	148	130
Height of nose	49.4	56	42	45.2	51	40
Breadth of nose	39.0	47	33	35.0	41	28
Length of ear	63.2	74	54	61.0	68	54
Arm index	45.5	48.3	43.2	45.2	48.4	39.2
Finger-reach index	104.1	110.0	99.4	103.1	107.6	98.5
Sitting-height index	53.2	56.2	50.7	53.0	55.7	49.4
Shoulder index	22.7	25.1	19.7	22.9	25.3	21.0
Cephalic index	85.9	95.8	76.5	86.4	92.7	76.6
Facial index (*a*)	81.4	94.7	73.8	81.8	87.5	75.1
Facial index (*b*)	125.6	138.8	114.0	129.7	142.5	113.6
Nasal index	79.1	97.7	60.7	77.7	97.5	58.3

among the Totonacs. The color of the skin is at (24) in more than two-thirds of the subjects.

Women are notably small; many are prognathic. The hair of all women, who have reached the age of thirty years, is tipped with brown or reddish-brown. Twenty-three mothers had borne one hundred and thirty-one children, of whom sixty-five had survived; two women were barren.

THE HUAXTECS

The Huaxtecs, of Tancoco, Vera Cruz, present a well marked type — presumably that of the tribe as a whole. They are of little stature, and truly brachycephalic. The head is short and broad, but it is also notably flat behind. The hair is straight and black, but subjects, from thirty years of age upward, often show a sprinkling of gray. There is often no beard upon the lower cheeks, and that of the upper cheeks is sparse and straggling until middle life; the chin beard is usually confined to the tip and central line, but grows to a considerable length; the moustache is permitted to grow long, but is rarely heavy. The eyes are dark brown, rather widely spaced, and often mongoloid; occasionally they are oblique, but dipping slightly at the outer instead of the inner corners; the eye-slit is often narrow. The nose, in younger subjects, is flat, wide, and with broad nostrils; beyond forty years of age it may become aquiline. The mouth is large, and the lips are thick; this thickness is in a vertical direction, and the lips project little, if at all. The face, as a whole, is flat, broad, and even square. The ear is well shaped, but usually stands quite off from the head; the helix border is thick, and the rather large lobe is round and attached. The skin color is light; the ground tint is (23), or (23) to (24), but there is always a mixture of gray — (7) or (8) — with it.

Women present much the same type, but their color lacks the gray tint so noticeable in the men, and is constant at (23) to (24). Fifteen women had borne fifty-five children, of whom twenty-two were dead. This series of women was unusually young, and this number is probably too small; we doubt, however, whether the fertility is great, as the Huaxtecs are clearly losing ground.

The Huaxtec language belongs to the Maya family, and the tribe is considered a northward migrant from that great group. We here place the indices and stature of the Huaxtecs and Mayas side by side:

	Arm	Finger-reach	Sitting-height	Shoulder	Cephalic	Facial	(b)	Nasal	Stature
Huaxtecs	45.3	103.7	52.8	22.8	84.4	79.1	125.1	78.3	1570.3
Mayas	46.	105.6	51.7	23.1	85.0	83.4	130.4	77.5	1552.4

The differences are notable: in one or two indices only do the two tribes come somewhat near together; they are frequently far apart. Comparison with some other tribe than the Mayas, of the same family, might prove suggestive.

FIG. 25. HUAXTEC: TANCOCO, STATE OF VERA CRUZ

TABLE XXVII. HUAXTECS

	Men (100)			Women (20)		
	Mean	Max.	Min.	Mean	Max.	Min.
Stature	1,570.3	1,693	1,413	1,472.7	1,533	1,403
Height of shoulder	1,296.3	1,390	1,147	1,213.0	1,273	1,146
Tip of second finger	582.8	656	515	555.1	617	502
Finger-reach	1,630.0	1,791	1,478	1,503.8	1,572	1,398
Height, sitting	830.8	916	738	774.5	827	731
Width of shoulders	359.2	396	324	327.2	357	305
Length of head	177.8	196	162	169.4	180	155
Breadth of head	150.1	164	140	145.8	158	138
Height of face (*a*)	177.5	194	154	167.9	180	155
Height of face (*b*)	113.4	130	101	103.8	113	96
Breadth of face	141.9	152	134	131.2	143	129
Height of nose	48.9	56	43	42.4	48	38
Breadth of nose	38.1	44	28	35.2	40	31
Length of ear	63.5	71	57	58.9	64	54
Arm index	45.3	48.4	40.0	44.7	48.9	41.9
Finger-reach index	103.7	109.0	99.5	102.0	106.5	97.7
Sitting height index	52.8	55.9	49.7	52.5	54.1	50.4
Shoulder index	22.8	24.8	20.9	22.1	23.4	20.6
Cephalic index	84.4	95.7	75.7	86.2	93.8	77.9
Facial index (*a*)	79.1	96.7	72.6	80.3	87.7	72.8
Facial index (*b*)	125.1	147.5	115.5	128.5	140.6	118.1
Nasal index	78.3	102.5	57.1	83.2	97.4	72.3

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FIG. 26. MAYA: TEKAX, STATE OF YUCATAN

THE MAYAS

The Mayas are of little stature, with not one tall subject in the series. Their arms are the longest observed, and the finger-reach is the maximum, at 105.6. They are next to the maximum in shoulder-breadth index. Their facial indices are the largest of our list, and their cephalic index next to the maximum. They have been characterized elsewhere as "short, dark, and brachycephalic." Short and brachycephalic they certainly are, but hardly dark. There are no cases at (16), so commonly reached by some of our tribes; the most frequent color is (23) or (23) to (24). The hair is black and straight; in six cases the color was lighter or gray, and in fifteen cases it showed a tendency toward wavy or curly. The beard was lighter in nineteen cases. The growth of the beard is moderately strong, and its distribution much as usual — scanty to medium on the upper cheeks, absent from the lower cheeks, scanty or medium upon the chin, and medium to full in the moustache. The eyes are dark-brown and widely separated; one-half the subjects presented a notable obliquity, though the character tends to disappear with age; in children it is almost universal and well marked. The nose is aquiline, though low, flat, and wide; the bridge is long, sometimes sinuous, and often projects as a central beak beyond the alæ. Lips are of moderate thickness and do not project much. The ear is well shaped and

stands well off from the head; the helix border is thick, and is rolled in above and flat below; the lobe is of fair size, and is attached in about one-half the cases. While the heads are brachycephalic, they are rarely flat behind.

The subject represented in the cut on the preceding page (Fig. 26) presents a well marked sub-type which is rather common. In this type the large round eyes are widely spaced, and almost stand off from the sides of the face; the nose projects but little, and the chin still less, so that the profile presents an almost continuous simple curve.

It is claimed that pure Mayas have a purple spot in the sacral region, on the back, which is called by the native name *uits*. If such a spot exists it is probably an infantile character like the similar spots which have been described among Japanese, Eskimo, and other mongoloid peoples. We examined three subjects expressly to find this spot and found no trace of it; the youngest of our subjects, however, was ten years old, and it is not unlikely that babies may be marked in this fashion. Among the hundred subjects examined by us we noticed that the little toe is often extremely short.

The women of this tribe present no features which call for special comment. Twenty-three mothers out of the twenty-five of our list had borne a total of one hundred and thirty-three children, of whom fifty-five had died; one woman was unmarried.

TABLE XXVIII. MAYAS

	Men (100)			Women (25)		
	Mean	Max.	Min.	Mean	Max.	Min.
Stature	1,552.4	1,675	1,452	1,415.2	1,500	1,331
Height of shoulder	1,283.0	1,410	1,182	1,165.2	1,246	1,074
Tip of second finger	567.7	661	497	528.4	595	460
Finger-reach	1,641.2	1,758	1,495	1,482.4	1,560	1,415
Height sitting	803.7	887	755	728.9	793	677
Width of shoulders	362.1	392	318	325.4	353	287
Length of head	181.8	197	165	174.9	183	167
Breadth of head	154.1	168	135	148.7	161	141
Heigth of face (*a*)	173.4	191	152	174.7	186	155
Height of face (*b*)	110.6	124	99	101.2	108	91
Breadth of face	144.2	156	135	136.9	145	130
Height of nose	48.6	60	42	43.3	52	37
Breadth of nose	37.5	42	33	35.2	41	29
Length of ear	61.7	76	50	61.2	73	56
Arm index	46.0	48.5	42.7	44.9	49.1	42.9
Finger-reach index	105.6	111.7	100.2	104.7	111.4	99.6
Sitting-height index	51.7	54.5	47.9	51.5	55.2	48.6
Shoulder index	23.1	25.3	21.0	22.9	24.8	20.6
Cephalic index	85.0	94.6	75.2	85.0	89.4	78.6
Facial index (*a*)	83.4	95.0	59.6	78.4	87.7	71.5
Facial index (*b*)	130.4	147.1	111.5	135.4	152.1	126.1
Nasal index	77.5	93.0	63.3	81.8	105.1	68.8

FIG. 27. ZOQUE: TUXTLA GUTIERREZ, STATE OF CHIAPAS

THE ZOQUES

The type of the Zoques is not clearly defined. They are among the taller tribes, having a mean stature of 1,600 mm., and only forty-nine of the hundred subjects falling within the group of little statures. In regard to all other measurements they occupy an intermediate position. The skin color is light; (23) is the most common tint, and (23–13) is next in frequency; women are a little lighter than men. The hair grays rather readily, and cases where it is slightly wavy or curly are not rare. The beard is scanty and straggling, or is entirely absent, although the moustache is fairly abundant. The eyes are dark brown and widely spaced; even a slight amount of obliquity is uncommon, and when it occurs is mostly in young subjects. The root of the nose is seldom depressed, but it is never really high; the bridge is straight, with a suggestion of concavity in young subjects, but becomes boldly aquiline and prominent in old persons. The upper lip is often notably, the lower feebly, developed; the lips project little, and when they are thick the thickness is vertical. The chin is often weak. The lower face is frequently broad, even as much so as the face at the level of the cheek-bones. The rather low forehead is frequently retreating, and, when this character is combined with wide cheek-bones and a slight occipital flatness, gives an impression of acrocephaly. This combination is not rare. The ear stands well off

TABLE XXIX. ZOQUES

	Men (100)			Women (25)		
	Mean	Max.	Min.	Mean	Max.	Min.
Stature	1,600.0	1,766	1,442	1,474.8	1,586	1,372
Height of shoulder	1,316.8	1,420	1,182	1,210.5	1,300	1,120
Hip of second finger	591.0	646	501	561.0	618	498
Finger-reach	1,651.8	1,785	1,469	1,497.5	1,619	1,398
Height, sitting	841.8	908	721	791.0	845	717
Width of shoulders	356.9	393	318	331.4	367	298
Length of head	182.3	196	171	175.7	185	163
Breadth of head	146.2	161	132	143.1	151	135
Height of face (*a*)	175.7	194	155	172.0	193	154
Height of face (*b*)	113.2	127	102	106.5	113	97
Breadth of face	139.5	154	127	138.0	141	125
Height of nose	62.3	76	54	46.0	51	40
Breadth of nose	37.8	41	32	35.2	39	31
Ear length	62.4	76	54	58.5	64	53
Arm index	45.4	52.6	43.3	43.8	47.5	42.0
Finger-reach index	103.2	108.6	96.6	100.9	106.2	94.0
Sitting height index	52.5	56.2	48.2	53.7	56.4	50.5
Shoulder index	22.2	25.4	19.7	22.4	23.8	20.1
Cephalic index	80.2	89.5	69.4	81.4	86.3	76.7
Facial index (*a*)	79.9	92.2	69.5	77.9	84.8	70.7
Facial index (*b*)	123.2	137.5	109.0	126.1	140.2	116.3
Nasal index	77.4	95.3	61.1	76.9	92.5	64.0

from the head; the upper section of the helix border is thin and rolled in, while the lower section is thick and flat; the lobe is large, attached, and round (-square); it is not unfrequently free.

Women present few peculiar features for consideration. Their nose is large and aquiline in a degree unusual in the sex; they are somewhat prognathic, though the lips protrude little, being thick vertically. Large families — ten, twelve, thirteen children — are not rare. Among our subjects were five unmarried women; the remaining twenty had borne one hundred and forty-three children, of whom fifty-six had died. The number of unmarried women is the largest we have observed. Women generally show great asymmetry of shoulders, one being much higher than the other; a woman not thus affected is the exception. We attribute the condition to the peculiar mode in which these women carry babies. The child is slung at one side, hung in a cloth band, which passes over the opposite shoulder.

Pinto is a common disease among Zoques, occurring in both men and women. No cases of the red form were seen, but the white and the blue were frequent, and frequently occur in the same individual. The blue is most noticeable upon the face, where it forms connected patches, confluent reticulations, and "powder-dotting." Where blue pinto affects the face, the hands and feet are quite likely to be blotched with white. In a few cases both kinds affected the extremities, which were sometimes a mass of distinct or indistinct color-blotching. Thirteen cases were noted among the hundred men, and six among the twenty-five women.

On account of their linguistic relationship a comparison of the indices of the Zoques and Mixes becomes interesting. When we place the indices side by side we find a fair amount of agreement.

	Arm	Finger-reach	Sitting-height	Shoulder	Cephalic	Facial	(*b*)	Nasal
Zoque	45.4	103.2	52.5	22.2	80.2	79.9	123.2	77.4
Mixe	44.6	104.3	52.1	22.6	81.8	81.8	122.9	78.8

THE TZOTZILS

In most respects the Tzotzils occupy an intermediate position. They have a great sitting height, short arms, and noses that are next to the broadest observed. They give the impression of having long heads, and in reality are only surpassed in actual head-length by the Otomis; as their stature is twenty-two millimeters less than that of the Otomis, this impression is really justified. The head is, however, relatively narrow. More than half of the subjects have the color (23); more than half the remainder are at (23–13); they are notably lighter than their neighbors and linguistic relatives, the Tzendals. There were fourteen cases where the hair was more or less gray, but only one where it was anything but straight. The beard is rather abundant; upon the upper cheeks there is a medium growth, the lower cheeks are generally bare, the chin beard is medium or even full, the moustache growth is medium. The eyes are widely separated and often oblique. While the form of the nose is quite uniform, the line of its junction with the forehead varies; on the whole it is of medium height

TABLE XXX. TZOTZILS

	Men (100)			Women (25)		
	Mean	Max.	Min.	Mean	Max.	Min.
Stature	1,559.0	1,669	1,445	1,441.3	1,530	1,373
Height of shoulder	1,291.0	1,421	1,165	1,181.3	1,281	1,129
Tip of second finger	588.2	671	507	545.4	593	508
Finger-reach	1,603.4	1,725	1,447	1,452.6	1,562	1,340
Height, sitting	830.3	890	745	783.6	872	734
Width of shoulders	346.9	379	309	320.1	350	280
Length of head	188.1	200	177	179.7	191	172
Breadth of head	144.6	156	135	138.1	147	130
Height of face (*a*)	175.2	201	152	166.8	187	151
Height of face (*b*)	113.3	132	99	106.0	117	100
Breadth of face	140.9	156	130	132.7	144	124
Height of nose	48.1	60	42	43.1	48	38
Breadth of nose	40.5	46	33	35.5	39	33
Ear length	62.1	76	54	58.1	65	52
Arm index	45.0	49.3	41.2	44.0	47.2	41.2
Finger-reach index	102.7	106.7	96.7	100.7	105.2	95.3
Sitting-height index	53.2	58.3	49.1	54.2	60.5	51.0
Shoulder index	22.2	24.3	19.7	22.1	24.1	20.4
Cephalic index	76.9	82.7	68.5	76.8	81.9	71.9
Facial index (*a*)	80.6	93.4	69.0	80.3	89.4	71.6
Facial index (*b*)	124.7	144.4	107.5	125.3	142.5	110.7
Nasal index	84.8	104.5	63.4	82.6	100.0	73.3

FIG. 28. TZOTZIL: CHAMULA, STATE OF CHIAPAS

and width, but clearly tends to high and medium or even high and narrow; the nose itself is low and flat, with a short and thick tip. The lips are thick, and the upper lip often projects notably. There is little prognathism. The ear, which lies close to the head, is little and well shaped; the border of the helix is thick, and is rolled inward above, flat below; the lobe is large, attached, and round.

Women show few points which need consideration. Their nose is lower and thicker at the tip; their lips are more projecting; they present greater prognathism; and their ears stand off more. The answers secured regarding families are entitled to no consideration.

THE TZENDALS

In stature at 1557.1 the Tzendals are among the shorter of our tribes; only one case in the hundred was tall, while 75 per cent. were of "little stature." Their sitting-height is only surpassed by that of the Chinantecs. The arms are long and the finger-reach is great. The color is a fine dark-brown; it is more uniform than in most tribes; more than one-half the subjects were at (16) and a considerable part of the others were at (13). The hair is straight and black; in ten cases it was slightly wavy or curly and in six of these it was gray or sprinkled with gray. Little or no beard appears before twenty-five years; at its first appearance it is scanty and only on

FIG. 29. TZENDAL: TENEJAPA, STATE OF CHIAPAS

the upper cheeks and on the upper lip; at from thirty to thirty-five, there is a medium growth on the upper cheeks, none on the lower, scanty and short on the chin, while the moustache is from scanty to medium and short. The beard grays earlier than the hair of the head; a single subject only approached baldness. The head is actually long, but the cephalic index, 76.8, is the minimum observed; only 14 per cent. reach brachycephaly. The maximum face-breadth and head-breadth are much the same and were, in many cases, identical. The face is generally prognathic and the lips are thick and protruding. The nose is medium or short, and thick at the tip; the line at the junction of the nose and forehead is moderately high and the nose is there of medium width. The eyes are widely separated and about one-fifth of the subjects showed a slight degree of obliquity. Out of one hundred subjects three had lost one eye by inflammations. The ear is round, of medium size, and close to the head; the border of the upper portion of the helix is rolled-in and thick: that of the lower part is thick and flat; the lobe is from large to medium, attached and round.

In women the color runs close to (23) with some cases tending to (13) or (15). Out of twenty-five women three were unmarried and four were barren, the remaining eighteen had borne seventy-four children, of whom thirty-two had died. The eyes of women were notably spaced and in four cases were slightly oblique. The nose is rather wide, and of medium height between the eyes, with short and thick tip. The

lips are rather thick and the upper projects. The ears are round, of medium size and well-shaped; the border of the helix is thick and its upper part rolled-in, the lower part flat; the lobe is medium or large, attached, and — generally — round.

The type of the Tzendals, on the whole, presents considerable resemblance to that of the Tzotzils, their close neighbors, geographically and linguistically. Their heads, though large, are slightly smaller than those of the Tzotzils; the impression made to the eye is considerably in favor of the latter. A greater variation in the Tzendals, in ten out of fourteen measurements, suggests that the Tzendals have mixed more with other tribes than the Tzotzils have — or, at least, that the people of Tenejapa have mixed more than those of Chamula. In both of the facial indices the Tzendals are superior; this greater face-breadth, associated with a slightly less cephalic index, is curious. The tribes are quite close together in sitting-height, which is rather large. Though the Tzendals are a little shorter, they have longer arms and a greater finger-reach than the Tzotzils. There is a greater difference in shoulder-width than we should expect.

TABLE XXXI. TZENDALS

	Men (100)			Women (25)		
	Mean	Max.	Min.	Mean	Max.	Min.
Stature	1,557.1	1,722	1,403	1,438.4	1,548	1,338
Height of shoulder	1,286.7	1,503	1,153	1,175.2	1,276	1,094
Tip of second finger	547.3	656	515	521.3	567	457
Finger-reach	1,613.3	1,827	1,419	1,455.6	1,563	1,311
Height, sitting	830.0	921	738	772.0	824	720
Width of shoulders	312.2	398	295	318.3	352	295
Length of head	187.7	202	164	180.7	197	171
Breadth of head	141.1	159	128	137.0	144	113
Height of face (*a*)	173.0	196	154	162.3	177	153
Height of face (*b*)	112.1	131	98	101.8	111	95
Breadth of face	140.8	156	127	131.1	137	126
Height of nose	47.9	60	40	42.2	48	37
Breadth of nose	39.9	50	33	35.6	41	32
Ear length	62.2	72	52	57.7	64	49
Arm index	45.5	48.7	42.8	45.3	51.2	43.0
Finger-reach index	103.4	109.3	97.7	101.1	106.8	96.0
Sitting-height index	53.3	58.8	50.7	53.6	56.0	50.9
Shoulder index	21.9	24.2	19.8	22.0	23.6	20.6
Cephalic index	76.8	86.4	68.0	75.9	82.4	66.4
Facial index (*a*)	81.6	94.5	65.6	80.9	87.5	72.7
Facial index (*b*)	125.9	144.4	104.9	129.0	141.0	117.1
Nasal index	83.8	102.2	64.1	84.6	97.5	68.7

THE CHOLS

In stature, the Chols fall between their neighbors and linguistic relatives, the Tzotzils and Tzendals, in the list of little statures at 1,557.9 — with 75 per cent. of the subjects below 1,600 mm. The arm index is moderate, but the finger-reach index, 103.8, is rather high. The cephalic index is far away from that of all linguistic rela-

FIG. 30. CHOL: TUMBALA, STATE OF CHIAPAS

TABLE XXXII. CHOLS

	Men (100)			Women (25)		
	Mean	Max.	Min.	Mean	Max.	Min.
Stature	1,557.9	1,686	1,436	1,413.2	1,485	1,305
Height of shoulder	1,288.4	1,423	1,184	1,165.6	1,247	1,067
Tip of second finger	580.7	685	506	523.1	605	449
Finger-reach	1,614.0	1,775	1,289	1,438.1	1,538	1,356
Height, sitting	817.8	897	725	748.1	854	680
Width of shoulders	346.7	391	289	310.5	343	289
Length of head	182.5	202	165	177.1	188	167
Breadth of head	147.5	159	134	141.6	153	128
Height of face (*a*)	175.8	195	155	166.2	181	150
Height of face (*b*)	113.2	128	101	103.2	114	92
Breadth of face	141.2	157	128	130.2	139	122
Height of nose	48.8	58	41	45.0	50	40
Breadth of nose	37.1	48	31	34.2	41	29
Ear length	60.4	70	53	58.4	69	51
Arm index	45.3	48.4	40.8	45.4	53.5	41.7
Finger-reach index	103.8	109.4	98.2	101.7	106.7	94.9
Sitting-height index	52.4	55.9	48.6	52.8	64.1	46.4
Shoulder index	22.1	25.1	19.7	21.9	23.9	20.5
Cephalic index	80.8	95.7	72.4	80.0	90.0	73.5
Facial index (*a*)	80.4	90.7	71.2	78.5	84.6	70.7
Facial index (*b*)	124.9	140.5	108.8	126.5	139.5	111.5
Nasal index	76.4	106.9	58.6	76.1	89.1	61.7

tives. The fundamental coloring is (23), darkening in individual cases to (23–13). These two shades occur in two-thirds of the subjects, and no case varied far from them. There were but three cases in which the hair showed any tendency to wavy or curly; there was no baldness, and only one case of gray and one of gray-sprinkled hair. The beard on the upper cheeks is medium, on the lower cheeks none, on the chin scanty; the moustache is of medium quantity and rarely attains to any length; shaving is quite general; five beards were more or less gray, and two were of a brownish color. The eyes are dark brown and widely separated; while twenty-five cases showed a slight obliquity, not one was truly mongoloid. There was one case of strabismus. The nose is quite large and prominent; it is aquiline, sometimes extremely so; its index is the lowest but one in the list; the line at the junction of the nose and the forehead varies from high to medium and from narrow to medium; when it becomes lower it also becomes wider; but there is no tendency to low, wide forms. The lips are of medium thickness or even thin, and project little or not at all. The ears are round and well formed, and stand fairly off from the head; the upper border of the helix is rolled inward, but opens downward and is flat in the lower part — it is everywhere thick; the lobe is of medium size and attached — varying in form from triangular to round-triangular.

The stature of the females is about 90 per cent. of that of the males; their arm index is the same, but their finger-reach index is less. Their color is a little lighter at (23) and (23) to (15); it has more of a reddish tinge. Among our twenty-five women was an undue proportion of old women — showing three cases of gray hair. There were no unmarried women in our series. Twenty-four mothers had borne one hundred and two children, of whom fifty-nine had died.

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